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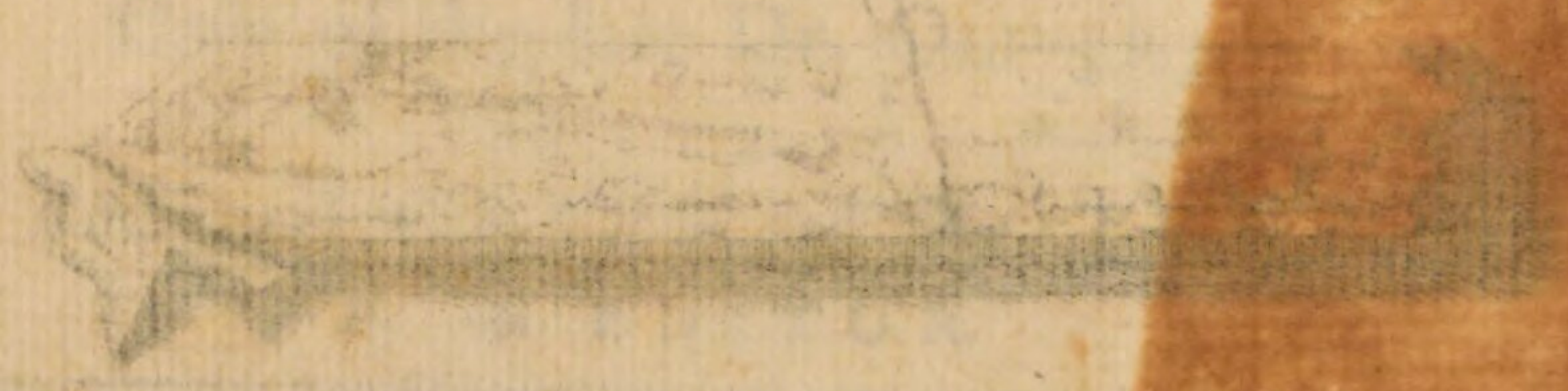
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THREE TRACT

BATH WATER



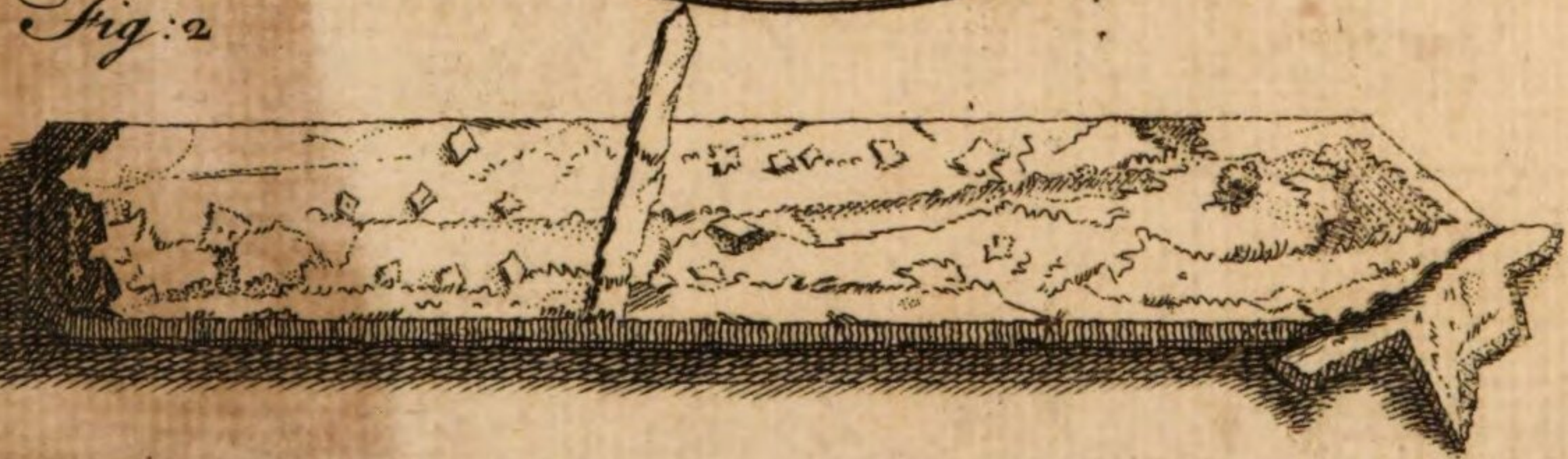
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1882

Fig: 1



Fig: 2



THREE TRACTS

O N

BATH WATER.

B Y

R. CHARLETON, M. D.

Physician to the GENERAL HOSPITAL.

TRACT the FIRST.

A Chymical Analysis of Bath Water.

SECOND EDITION.

TRACT the SECOND.

An Inquiry into the Efficacy of Bath
Water in Palsies.

SECOND EDITION.

TRACT the THIRD.

Histories of Hospital Cases under the
Care of the late Dr. OLIVER;

W I T H

Additional CASES and NOTES,

By the EDITOR.

BATH:

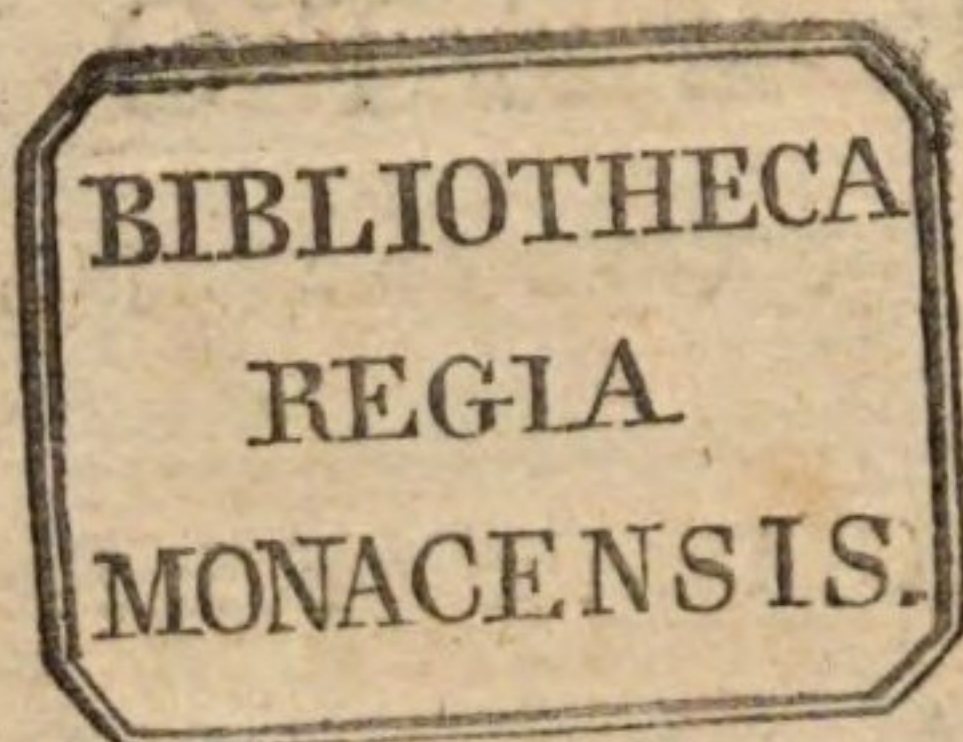
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M DCC LXXIV.



TO HIS GRACE

T H O M A S,

DUKE of LEEDS,

MARQUIS of CARMARTHEN,

KNIGHT of the most noble ORDER of the GARTER,

L. L. D. and F. R. S.

A GOVERNOR of the GENERAL
HOSPITAL at BATH.

MY LORD,

AS the following sheets consist chiefly of testimonies, which prove the great utility of our General Hospital, I know not to whom they can with more propriety be addressed than to so warm and generous a patron, as your Grace is known to be, of this excellent institution.

At the same time, my Lord, I should ill deserve the many favours I have received from you, and that honour I derive from your friend-

ship, was I not to confess there is another motive for my prefixing your Grace's name to this publication.

This other motive, my Lord, is gratitude ; which, joined to the most perfect esteem and respect, must ever make me,

YOUR GRACE'S

Most obedient

and most obliged

humble Servant,

R. CHARLETON.

TRACT

T R A C T

T H E F I R S T,

C O N T A I N I N G

A

C H E M I C A L A N A L Y S I S

O F

B A T H W A T E R S.

B Y

R. C H A R L E T O N, M. D.

S E C O N D E D I T I O N.

—— Inter se quia nexus principiorum,
Diffimiles constant.——

Incolumni remanent res corpore, dum satis acris,
Vis obeat pro textura cujusque reperta.

L U C R E T I U S.

T R A C T

THE FIRST

CONTAINING

A

CHEMICAL ANALYSIS

OF

BATH WATERS

BY

R. CHARLETON, M.D.

SECOND EDITION



ADVERTISEMENT.

THE following Tract has long been out of print. The author's desire of rendering it more perfect is the reason why it was not sooner republished. He had, indeed, made his experiments with care, and had reported them with fidelity; but as he found other gentlemen engaged in the same pursuit, and as he was but too well acquainted with the difficulties of the inquiry, he waited for their publications, in hopes to have been enabled by such helps (with all due acknowledgment) to have corrected the imperfections of his own.

In some of these treatises, on the composition of Bath waters, which have appeared since his was published, he has seen his opinions controverted. In others, he has seen those objections, which were raised to his opinions, removed.

He finds himself therefore, upon the whole, under no necessity of departing from his original sentiments, nor has he been able to collect, from subsequent writers, any thing which he thinks is very material to add to them. He must here except one discovery which has been made by Dr. Falconer, who has found that fixible or mephitic air enters the composition of these waters in considerable quantity. A principle with which chemistry had little or no acquaintance at the time this treatise was first published.

But the grounds on which he builds this adherence to his former sentiments will the more evidently appear by collecting under one view the several ideas which the principal analysers of these waters entertain of their contents. From hence it will be seen in what particulars they all agree ; in what they really differ ; and where their difference is more nominal than real.

In the opinion of the author of this analysis, the ingredients which impregnate these springs are iron, earth, common sea salt, a neutral salt, elementary fire, and a sulphureous matter.

In the opinion of Dr. Lucas, their principals are iron, an absorbent earth, common sea salt, a prismatic bitter salt, a portion of oil, and a vitriolic acid *per se*.

In Dr. Falconer's opinion, they are composed of iron, felenites, common sea salt, common air, mephitic air, and hepar sulphuris cum calce viva.

From this view it may be observed, that all these analysts agree in allowing the Bath Waters to contain iron, common sea salt, earth, and a sulphureous matter. And it will not be here improper to remark, that none of them mention common sulphur or brimstone, as existing under that *specific form* in their composition.

But though all these writers allow there is an ingredient of a sulphureous nature to be found in these waters, yet they differ with respect to its name. One calls it a balsam, or (borrowing the expression of Homberg) *Le vrai souffre du souffre commun*. One terms it an oil. One, a hepar sulphuris cum calce viva.

They

They likewise agree, that these waters contain an earthy matter, but here too they differ as to its name. One has termed it an alkaline earth ; the other an absorbent earth ; and the third a selenites.

There is also another seeming difference which is here to be taken notice of ; I mean the neutral salt, which two of these writers mention, and which the third has omitted. But this seeming difficulty will vanish if the reader attends to what is said of this salt in page 53 and 54 of the following treatise ; where the author has remarked, that “ he does not believe this salt primarily exists in these waters, (though its constituent parts do) but that it is generated while the waters evaporate.

So far our analysers are found to be better friends, than the public, perhaps, has been taught to believe.

But we now come to a real difference between them.

The point in dispute is this, namely, Whether there exists in Bath waters a vitriolic acid *per se*, or not ?

Such

Such an acid in a separate unmixed state, or *per se*, the writer of these sheets has declared he could not find. Dr. Lucas is positive in the contrary opinion, and pronounces its existence to be evident. Dr. Falconer says its existence is very dubious; and adds, “if it does exist, it is likely that a quantity of it, not exceeding a drop, is present in *many pounds* of the water, and as such can have little power in influencing its effects.”

The supporter of this opinion urges in its defence, that Bath Waters decompose soap and curdle milk. But these experiments are not decisive, as other substances, which are not acids *per se*, will produce the same effects. It has also been further urged, that Bath Waters ferment with alcalies; but this is a fact which no one, who has tried the experiment with the slightest degree of precision, and who has not an hypothesis to support, can possibly allow; the assertion being without doubt a mistake.

Since these arguments for a vitriolic acid *per se* in Bath waters do by no means confirm its existence, there remains no other trial by which its presence can be ascertained, unless we apply to the criterion of our senses: And since the ad-
vocate

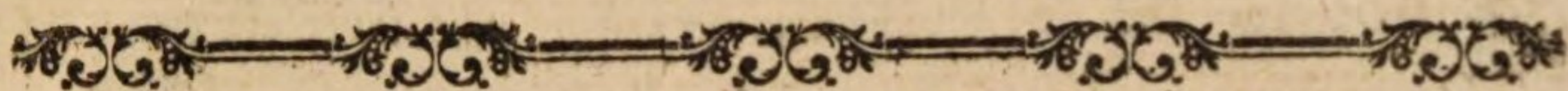
advocate for the existence of this principal lays so much stress upon this proof, what he has still further to plead in support of his hypothesis, ought to be attended to. Let us hear then what he says.

In page 277 Dr. Lucas tells us, “the first thing remarkable that presents itself to observation is a subtle acid, which flies off in vapour, and *sometimes sensibly strikes the nose.*”

Now was this a fact, it would terminate the dispute. But how can this be a fact? Seeing it is so diametrically opposite to what he tells us a little before, page 265, viz. that “the water newly drawn or taken up as near the source as may be, *has no sensible smell, no more has its vapour.*” Or with what he tells us a little after, page 298, that “it is true this acid is in a great measure so saturated with terrene matter, as well as diluted with water, *as to be imperceptible to the senses.*”

’Tis, indeed, unlucky to meet with so much contradiction within the narrow limits of so few pages; but it may not be without its use: For seeing one writer has declared it to be his opinion, that this acid *per se* does not exist; another

ther is in doubt if it exists or not; and the third not only flatly contradicts himself, but has unwittingly fallen into the very opinion he would oppose; the reader perhaps may be inclined to satisfy himself with the information which these sheets afford, or determine, as a more easy way *tantas componere lites*, to think no more about them; which resolution would be so far from displeasing to the author of this tract, that he promises to follow the example.



A

CHEMICAL ANALYSIS, &c.

CHAPTER I.

Of the MINERAL SUBSTANCES which the BATH WATERS bring up with them out of the Earth.

THE origin and course of the BATH WATERS being unknown, we are deprived of those helps in our search after their constituent principles, which an examination of the substances they run through would afford. For as all such waters derive their virtues from the bodies they dissolve during their continuance in the bowels of the earth, or from the steams of fermenting minerals with which they are there impregnated; an investigation of this kind is too essential and too useful a part of their *Analysis*

ly/s not to be regretted, when we are deprived of its assistance. But this defect in the present enquiry is however, in some measure, supplied by the following substances, which the current of these springs forces up from beneath.

The first, is a very peculiar sort of sand, of a dark grey colour. It appears to the eye to consist chiefly of small chrystals, like those of common sand, intermixed with black shining particles, and pieces of a white chalky earth. But when submitted to a chemical examination, we find in it an alkaline principle, iron and brimstone.

The first is evident from the violent fermentation which acids produce with it.

The second, from digesting it for a few days in pure distill'd rain water, which will thence become possessed of all the properties of a natural chalybeate: Or, if a loadstone is moved about in this sand, several small particles of iron will be attracted from thence by it.

The third ingredient which enters its composition, viz. brimstone, is discoverable from srewing a small quantity of this sand on a red-hot

hot poker, where it yields a blue flame, and a suffocating vapour: Or, from confining some of it in a retort, whence the true acid spirit of that mineral may be obtained by distillation.

To this sand succeeds a soft black mud, of a strong sulphurous smell; which yields, by the before-mentioned process, a considerable quantity of a tasteless, limpid, foetid water, that fermented with neither acids nor alcalies. The neck of the retort was lined with a fine straw-coloured powder, which glittered, was tasteless, and gave no blue flame in burning; but the vapour which arose from it was acid and suffocating. This mud being rubbed on silver changes it black.*

In some of the spring and summer months, it is usual to see large black cakes floating on the surface of these waters. They have been supposed to be some bituminous matter, but are in reality, a moss,† as is evident by keeping a

B part

* Both the sand and mud are found in the cisterns, which are placed over the springs of the several baths.

† Mr. Ray in his *Synopsis Stirp. Britannic.* calls this plant the *Jelly-Moss*.—*Conserva Gelatinosa, omnium tenerrima & minima aquarum limo innascens.*

part of them for a few hours in a glass of common water, which by washing off the mud in which it grows, and that clots its fibres together, gives them liberty to expand, and to demonstrate their being a vegetable from their *figure*. By distillation it produces the usual component principles of its tribe; from whence, with its being commonly to be found in other places,* it cannot be supposed to impart any peculiar virtues to the Bath Waters: But how far they are obliged to either of the two preceding substances in this respect, we shall have a more fit opportunity hereafter of shewing, when it is discovered of what ingredients they are composed.

* Gaudet limo nigro tenero & pingui & in fossis purioribus passim circa Londinum observetur toto fere anno.

Synop. Stirp. Britan.

C H A P. II.

Of the CHALYBEAT PRINCIPLE *in the*
BATH WATERS.

THE BATH WATERS have ever been deemed chalybeat; and it is evident they are so, as well from their smell and taste, as from the phænomena produced in them by their mixture with the following materials.

1st. The water of each bath, *viz.* the King's, Hot, and Cross, instantly changed with powder of galls to a rich purple.

2d. With a few grains of powdered logwood, they at first struck a reddish purple, and in less than a quarter of an hour turned of a deep violet.

3d. With green tea they acquired the same colour as with galls, but much fainter.

4th. With pomegranate bark they became of a bluish cast, when placed in some lights, and of a greenish yellow in others, like those changeable silks, whose colours vary

according to the different points of view
are they observed in.

5th. Balauftines* produced in these waters
a colour, which at first resembled that
of galls, but it afterwards altered to a
greenish hue.

These changes which galls and other similar
substances excite in mineral waters, are held to
be a sure criterion of their containing a chaly-
beat principle; and experiments of this sort
are commonly confined to a bare demonstration
of its existence. But as it has been found by
frequent trials, that such waters *vary* from the
faintest shade of purple to the deepest black, in
proportion to the quantity of this ingredient,
which they are possessed of; and as they re-
quire a larger or a smaller quantity of galls to
bring them to their highest tint, in the same ra-
tio; such experiments may be conducted to a
more useful purpose, than that to which they
are commonly assigned: For it becomes a mat-
ter of no great difficulty, by preparing an *arti-
ficial chalybeat* water, in which a known portion
of this metal is dissolved, to determine how
much

* Flowers of the wild pomegranate tree.

much of it exists in the *natural one*: It being a necessary consequence of the above observations, that where two waters strike the same colour with equal quantities of galls, that each must contain the same quantity of iron.

Mr. *Monro*, of *Edinburgh*, to whom the physical world is much obliged for many useful and curious discoveries, has, in the third volume of the *Medical Essays*, given us one on the present subject; in which he says, that in the salt of steel the proportion of iron is little more than a third part, and that by dissolving one ounce of it in twenty ounces of water, 142 drops of which solution weigh two drams, every such drop will contain $\frac{1}{75}$ of a grain of iron.

I prepared such a solution of the salt of steel, by dissolving 240 grains of it in 10 ounces *averdupois** of water, and found, by a very accurate ballance, that 97 drops of it, let fall from a small glass tube, exactly weighed two drams. These drops were therefore larger than those in Mr. *Monro*'s calculation, and each of them contains $\frac{1}{47}$ of a grain of iron.

B 3

At

* This is mentioned, because in Mr. *Monro*'s solution, the water was weighed by troy ounces.

At the same time a strong tincture of galls was also made, by digesting one ounce of them in powder, with a pint of rain water, in a gentle heat for some days; and with these helps I proceeded in the following manner, to discover the quantity of the chalybeat principle, with which the Bath Waters are impregnated.

I dropped the tincture of galls from a small glass tube, in different quantities, into pint glasses, of the same shape and thickness; and then immediately filled them with the water as it came hot from the pump. It was found, by repeated trials, that ten drops of this tincture were the precise number, which brought the water of the King's Bath to its highest tint; and that five drops were sufficient for this purpose in those of the Hot and Cross Baths.

The water of the King's Bath struck a warm, rich, rosy purple; the others only differed from it in their shades being lighter.

To imitate the colour of the King's Bath Water, two drops of the solution of iron above-mentioned, added to three pints of pure rain water, were sufficient: For thus an artificial chalybeat was produced, one pint of which struck,

struck, with ten drops of the tincture of galls, a purple, from which that of the natural one was not to be distinguished, but by the warmth and richness of its tint.

It appears therefore from the preceding experiments, that the chalybeat principle in a pint of the King's Bath water, is equal to the quantity of iron contained in two thirds of a drop of the solution; which, by calculation, comes out to be $\frac{1}{70}$ of a grain nearly; and as the waters of the Hot and Cross Baths are but of half its strength, there is in a pint of either of these only $\frac{1}{140}$ part of a grain.

This discovery at first sight may seem prejudicial to their reputation; but it would be doing the highest injustice to these waters, should we attempt to explain their virtues from only a part of their composition; or attribute to one ingredient, what results from the happy combination of *several*. Besides, this seeming prejudice will be entirely removed, if it be considered, that the same method of investigation being applied to other chalybeat waters, shews they are all impregnated with this principle, in a degree infinitely inferior to what might be imagined.

Should

Should we not alter our opinion of the powers of steel medicines from hence? And conclude, as nature deals this mineral out so sparingly, in her most fanative compositions, that its efficacy depends far less on quantity than the common usage of prescribing it supposes.

It has been said, that the chalybeate principle of the Bath waters is *volatile*; that they lose it by keeping; and through its escape, become vapid and effœte. The falsity of which position will be shewn by the following experiments.

1. Having filled a large bottle at the pump of the King's Bath, a wet bladder emptied of its air and with its surface well oiled, was tied closely over its mouth; after a time, the bladder became distended, and the vapour which was thus collected, being gathered into a large bubble, was sunk to the bottom of a glass which contained a weak tincture of galls. Upon running a pin into that part of the bladder, where this vapour was, it rushed out with considerable noise, produced great agitation in the liquor, and filled it with blebs of air, which burst as they arrived at its surface.

face, but excited no alteration in its colour, or shewed the least marks of a *volatile chalybeat*.

2. A large quantity of the King's Bath water was distilled from a retort, in whose neck a hole was made, through which its more volatile parts might escape; over this hole was placed a piece of spongy paper, that had been soaked in a strong tincture of galls. The paper was rolled up into a conical shape, and covered with a glass bell, which condensed those vapours which arose in the distillation, and returned them again upon it. The consequence of this experiment was, that though the paper became thoroughly wet with the vapour, yet it was changed to neither a purple or a black colour.

3. I put into a receiver a few fragments of a gail nut, and distilled the water of the same bath into it from a glass retort, having first of all well secured their junction by cement and wet bladders. The water which was thus distilled remained entirely free from any the least tint, which could raise
a sus-

a suspicion of its being impregnated with iron.

The received notion therefore, that the Bath waters contain a *volatile* chalybeat principle, is without foundation. Surely its effects must have appeared in one or other of these trials, either of which was so susceptible of demonstrating its existence: For one drop of a weak solution of iron tinctured the fluids of the first and third experiments with a very distinguishable purple; and being poured on the paper which was used in the second (after it was dry) gave it a blackness equal to what it would have acquired, had it been dipped in ink.

But it may be asked, if the chalybeat principle of the Bath waters is not *volatile*, and does not fly off from them; why do they lose their power of tinging with galls by being kept? The following experiments will tell us:

Two Florence flasks were filled with this water, and their noses inverted into decanters of the same. One of the flasks was quite full; the other had an air bubble left on its surface of two and $\frac{1}{2}$ inches diameter. After 24 hours each was examined

mined with galls. The water in the flask where the air bubble was left, shewed scarcely any tinging property ; but that in the other, which was quite filled, struck immediately a vivid purple, nearly equal to what it gives when just taken from the pump.

Hence we see the water is deprived of this power by a bare communication with the air ; and that even when it is preserved in such a situation as renders the escape of its chalybeate principle impossible. It would be absurd to suppose *this* could pass through the pores of the glass ; or granting it to be capable of obtaining such a passage, 'twill be a matter of the utmost difficulty to explain, why it did not leave the waters in each flask alike?

It is to the air therefore alone, that such alterations are to be attributed, which (to use the words of a very judicious writer*) “ by its incessant elastic action, promotes some degree of agitation or ferment in the water, causing the mineral particles thereby to disentangle themselves from the water, and to coalesce into

* See Dr. *Hale's* Experiments on Steel Waters, &c. Page 105.

“ into new combinations of so much larger size
 “ as disqualifies them to be any longer suspended
 “ in the water ; they then precipitating to the
 “ bottom and sides of the bottles, partly in the
 “ form of a yellowish ocre, and partly in cloudy
 “ flocks or thrumbs.”

Where the air is secluded, no change of this kind ensues ; nor does it happen to a water with which some acid spirits have been mixed ; these being repugnant to any putrid agitation which that restless element can excite.* Besides it is a fact, that when the Bath waters have lost their tinging properties, they will acquire them again after they have undergone a thorough fermentation ; which it would be impossible they could do, was their chalybeat principle *volatile*.

What

* Acid spirits, besides their power of preventing any putrid agitation in the water, have still a further one which greatly contributes to preserve its tinging properties, and that is, their keeping the chalybeat principle sufficiently dissolved, attenuated, and mixed with the water : And hence, by dropping spirit of sulphur, or spirit of vitriol, into the Bath waters, I have preserved their tinging properties for a great length of time, though the bottles in which they were kept have been corked only in a common manner. Without these acid spirits, the waters are entirely deprived of them in a few days.

What these waters principally lose when they are withdrawn from their spring, is their elementary fire.

I had a glass vessel made of a globular shape, from whence arose two tubes, the one capillary, the other of $\frac{1}{4}$ of an inch diameter, and both of three inches in length. This vessel was filled with the water of the King's Bath, taken hot from the pump, to the top of each tube; the larger of which was then covered with a piece of gold-beater's skin, and some putty, which separated its contents from all contact with the external air. By the next morning the water in the capillary tube had sunk 2 and $\frac{1}{2}$ inches nearly, and required six grains of the same water (which was cold) to raise it to the height it was first at.

Hence we see the Bath water increases in its specific gravity, as this principle flies off from it; and that its particles approach nearer to each other, and the whole volume of the fluid is condensed. Which alterations in the arrangement and mixture of its component parts, joined to the loss of this ætherial fire, is probably

bably the reason why its virtues can never be restored, when it is once grown cold.

The heat of the several baths, as taken by *Farenheit's* mercurial thermometer, is as follows :

The water of the King's Bath, where it is of the greatest warmth, raises the mercury to 103 degrees ; and sinks it from thence, in its coolest part, to 100.

The thermometer stands in the Hot Bath at 100, or 101.

The different degrees of heat in the Cross-Bath, are 93 and 94.

The heat of the Queen's-Bath, is from 99 to 98.

The waters which are pumped up from the *cisterns* of the several baths for *drinking*, and which are conveyed through pipes immediately from their source, were found to be of various degrees of heat, at different times of trial.

Thus the water which flows from the pump of the Cross-Bath, has descended from 110 degrees, through all the intermediate ones, to 105.

That

That of the Hot-Bath,* from 116 to 112. And the water of the King's-Bath pump, from 116 to 114.

It is usually thought, that the Bath water retains its heat longer than common water heated to the same degree; but it did not appear to do so, by the most accurate experiments that could be made.

It were to be wished, among the several conveniences of bathing and pumping which the different heats of these baths afford, that we had a *vapour* bath; or a contrivance to let out the steam of the water (to which an artificial heat might be given where the natural one was insufficient) on any part of the body whence obstructions were to be removed. The advantages of such an application are much superior in many cases to the common methods of pumping, and are attended with none of its inconveniencies.

The amazing power of warm vapour has been abundantly shewn by its effects in *Papin's Digester*, where the hardest bones are in a few moments

* Since the spring of the Hot Bath has been secured, the heat of this water is much increased.

ments rendered soft and pappy; but a simple experiment is sufficient for our purpose, to demonstrate how much more penetrating and dissolvent water is when thus rarefied, than in a more condensed state, though possessed of the greatest heat it is capable of attaining.

Put a small quantity of salt of tartar into a glass pan, and tie a piece of dry bladder over its mouth: Now boiling water may be for a long time poured on this bladder, without getting through its pores; whereas the steams of such water gain an immediate admission, which they demonstrate by dissolving the salt almost as soon as they are applied.

The inconveniences of *pumping* proceed from the weight and pressure of the water, which (together with its heat) excite a vibratory and impulsive motion in the obstructed vessels, that pushes forward their stagnant contents. If these are liquid enough to pass the bounds of their confinement, success will attend the application. But where they are too viscid; where they are endued with an acrimonious disposition; where the constitution of the patient is hot

hot and feverish ; or at least in that state at the time of using the *pump*, an inflammation of the part must be the consequence ; which, if great care be not taken, is followed by a generation of *matter*, whose most favourable termination calls for the *caustic* or *incision-knife*.

But none of these *ills* can proceed from the *vapour* bath : It removes obstructions by dissolving the hardened juices which form them, and not by stimulating the vessels to push them forward through narrower *passes* into the wider *roads* of *circulation*. The particles of water in this attenuated state, find an entrance through the pores which is denied them in any other ; and by the relaxing quality which these vapours possess, they open an easy passage through the skin for the obstructed *humours*, while they liquify them sufficiently to make their escape,

C H A P. III.

Of the SULPHUREOUS PRINCIPLE *in the*
BATH WATERS.

IT is a controverted point, whether or no the Bath Waters are impregnated with sulphur. Probably the indiscriminate use of that term, and of common *brimstone*, has been the occasion of this dispute. The latter is only applicable to a particular mineral, whose characteristics are, its yellowish colour; its great inflammability; its burning with a blue flame, and an acid suffocating vapour: Whereas the former should be understood in a much more extensive sense, so as to comprehend all *unctuous bodies* in general. And hence, if any such can be discovered in these springs, it has all just right to be called their sulphureous principle, how much soever it may differ from common brimstone.

It has already been shewn that this mineral exists in the Bath sand; but whether it actually enters the composition of the waters, is what I shall here endeavour to decide.

I judged

I judged that the most likely means of success would be to make artificial brimstone waters, and to add a diversity of mixtures to them and to the Bath waters at the same time : It would be thus easy to discover how far the phænomena produced in each agreed ; and consequently whether the natural water was impregnated with the same ingredient as the artificial one, or not.

With this view, therefore, there were prepared two sorts of brimstone waters. The *first*, by melting the flower of brimstone with salt of tartar, which together constitute a mixed body that readily dissolves in water. The *second*, by pouring common spring water on pounded stone brimstone, and returning it on again after it had soaked through, till it became sufficiently saturated with that mineral.

To equal quantities of these fluids, there were added 30 drops of a solution of *sublimate* in distilled rain water ; and at the same time a like number were dropped into that of the bath.

Number I. or the water prepared with brimstone and salt of tartar, changed instantly to a fine orange colour : Afterwards, it

grew thick, and let fall a yellowish sediment; which being dried, was flung on a red-hot iron, where it burnt with a blue flame.

Number II. or the artificial water made from brimstone alone, appeared of a beautiful pearl when held from the light; but opposite to it of a straw colour. On standing it became opaque and milky, and a fine white powder precipitated which burnt blue on a hot iron.

The Bath water shewed no alteration at first from this mixture; but at length a scum arose, and covered its surface, which reflected an infinite variety of the most beautiful colours.

From this class of experiments, we find that the Bath water bears no kind of similitude to the artificial ones: We shall therefore examine them with a solution of *quicksilver* in *aqua fortis*, added to each in the same quantity as before: With this,

Number I. became first of an orange, and afterwards turned to a pearl colour. Its
preci-

precipitation, which was of a cream, yielded a weak blue flame in burning.

Number II. became milky. In a side light the mixture had a bluish tint; in an opposite one, a faint yellow. The powder which was deposited at the bottom of the glass, was white, and burnt blue.

The Bath waters reflected a fine bright orange. Its sediment was of the same cast, and shewed no signs of inflammability.

We here find some resemblance between the Bath water and No. I. which consists in their both striking pretty nearly the same colour: But as this is owing to the *alkaline* principle that each contains, as will be shewn when we come to treat of the salts and earths which are in the Bath waters; it must not from this similarity alone be concluded, that they are both impregnated with the same sulphureous ingredient.

A third trial was made on each of these waters with a solution of *silver* in *aqua fortis*.

In Number I. the liquor at top was of a dirty white, at bottom of a dark brown.

The precipitation was of a greyish colour, and burnt with a pale blue.

In Number II. the fluid was dark and muddy. A black shining powder subsided, which flamed with a vivid blue.

In the Bath water, dark clouds were instantly formed, which gradually becoming black, at length descended and formed a sediment of the same colour. This black matter gave no flame on a red-hot iron, but smoaked much, and turned to a calx.

All these waters agree here in one particular, which is the blackness they give to the silver that's precipitated. This we know is one of the properties of common brimstone; it is owing to the acid part of that substance; and other mineral acids are capable of producing the same. Thus if pure distilled rain water is well saturated with common salt that has been purified for use, it changes the silver which it precipitates equally black with the above-mentioned waters. It does not therefore follow from this experiment alone, without the assistance of other concurrent proofs, that the Bath
water

water is impregnated with *common brimstone*. But upon the whole the contrary is to be concluded, seeing its precipitations have no where in these trials produced the genuine and distinguishing characteristics of that mineral, viz. a *blue flame* and a *suffocating acid vapour*. To which we may add, that no alterations are produced in the Bath waters with *fossil* acids; whose well-known property it is to precipitate this body from the menstruum in which it is dissolved, and at the same time to occasion a most fœtid disagreeable smell. Neither does their residuum, (the solid contents of the water obtained by evaporation) when flung on a red-hot iron, or on live coals, give any cause to suspect the contrary; which it most certainly would do, was ever so small a portion of real brimstone mixed with it.

As this mineral, therefore, does not enter into the composition of the Bath waters, I shall proceed to another species of enquiry by which the nature and existence of their *true* sulphureous principle will be discovered and ascertained.

One dram of salt of tartar, and four drams of the residuum of these waters, were ground

together into a powder, and kept in a crucible over a strong fire, till they grew quite hot. This powder was immediately flung into a Florence flask, which contained about half a pint of pure rectified spirit of wine. The spirit quickly became tinged, of a rich golden colour, and acquired, by digestion in a sand heat, a grateful fragrancy of smell, with a hot, pungent, spicy taste.

This experiment was made in imitation of the 154th process in *Boerhaave's* chemistry; where he shews the method of dissolving common brimstone in alcohol or highly rectified spirit of wine: To which *solution* the tincture nere obtained bore a perfect resemblance.

In those deductions which that great chemist has drawn from this process, he observes, that sulphur (by which he means common brimstone) must first be opened by an alcaly before it will dissolve in the spirit.—That this substance frequently lies concealed in many fossil bodies, from whence tinctures have been extracted, and imposed on the world for the most valuable metallic ones. An instance of which he

he gives in one which was boasted to have been made from gold, and concludes with an observation preventative of such impositions. *As soon (says he) as a skilful artist discovers that a fixed alkali is employed in making them, he knows they must proceed from sulphur.** Consequently, the tincture here obtained from the residuum of the Bath waters, must proceed from a sulphureous principle of one kind or other which they contain. But that this is not *common brimstone* is evident from hence, that when distilled vinegar was added to this tincture, no offensive smell was produced; nor did any thing precipitate which was possessed of its properties. Whereas, if the same acid be mixed with the golden tincture of the before-mentioned process in *Boerhaave's* chemistry, there soon arises a *stercoraceous odour*, and *that mineral* subsides.

The sulphureous principle, therefore, which is contained in the residuum of these waters, bears only this resemblance to common brimstone, that they both give a like colour to spirit of wine.

Now

* Simul ac enim cognoscitur alcali requiri ad easdem conficiendas, peritus artifex ocyus cognoscitur de sulphure nasci.

Now if we consider the composition of that *fossil*, we shall find it is only one of its constituent ingredients* which is capable of producing this effect. Neither its alcaly, nor its acid spirit, are in any degree equal to it, and therefore it must be its bituminous part, or as *M. Homberg* expresses it, *le vrai souffre du souffre commun*. to which this alteration of colour is to be attributed.

Probably the sulphureous principle of these waters may consist of such a bituminous matter. The preceding experiment favours such a supposition; and the subsequent ones will, I presume, confirm it.

1. If a large quantity of the Bath water, as 50 or 60 gallons, be evaporated with a very slow fire nearly to a dryness, or till only a quart or three pints of it be left; this remainder being poured off from the earthy parts, which the operation has collected, and passed through filtrating paper, appears in respect of its colour like
mountain

* Brimstone consists of an alkaline part, an acid spirit, and a bituminous matter. *Vide* Essai de L'Analyse de Souffre Com. *Memoirs de L'Acad. Royal, An. 1703.*

mountain wine, and in its smell, resembles the balsam Tolu.

2. If an equal quantity of pure spirit of wine be poured to this *amber-coloured* water, the mixture immediately becomes turbid and milky, and continues so till the precipitation of a saline unchrystallized mass restores it to its original transparency and colour: The latter being now rendered fainter by the division of the *sulphureous matter*, which produced it, through the additional quantity of the spirit of wine.

3. When this saline mass has entirely subsided, decant the clear liquor, and gently evaporate it. The vapour which at first arises is highly perfumed, but grows less so in proportion as the spirit of wine diminishes. When this is entirely exhaled, the watery part of the mixture recovers its former *balsamic* smell, and being at length totally driven away in steam, there remains a thick soapy liquor, of a hot, aromatic, pungent taste, of a grateful

grateful fragrancy, and of a dark-brown colour.

This is the sulphureous principle of the Bath waters. It is an exceeding fine aromatic balsam, entirely dissimilar from common brimstone, which has hitherto been said to constitute this part of their composition.*

It

* What is here said to be the sulphureous principle of Bath waters, and which from its smell, taste, and consistence, is termed a balsam, has been declared to be nothing more than an oil. But that this matter is not an oil is evident from hence, that oil will not mix with water, and more especially if the water, as this objector asserts it is, be impregnated with an acid. Had this writer made the same experiment, on which this opinion is grounded, with equal care and with all its circumstances, he would scarcely have been so positive in his assertions. And to shew farther, how much sulphur is concerned in the production of these waters, it will be Proper here to mention, that when the spring of the Hot Bath was last summer secured, a considerable quantity of this mineral was found adhering to the stones of the old foundation. These stones lay between 10 and 11 feet below the ground plat of the bath; so that the sulphur, which was lodged between their crevices, must have been brought thither by the water issuing from its source. Mr. Symons, by whose care the water of this bath has been restored to its original purity, which by the mixture of some cold springs had been much impaired, collected a considerable quantity of this matter, which, upon examination, gave every proof of its being common brimstone.

It is impossible to determine the precise quantity of this principle in any assigned portion of the water, because much of it flies off during the several evaporations which are necessary to collect it.

C H A P. IV.

*Of the SALINE and EARTHY PRINCIPLES of
the BATH WATERS.*

WATER is so ready and so universal a solvent for all the various species of salts, that there is hardly ever found a spring so pure, but some one or other of this class of bodies make a part of its contents. Mineral waters especially are never free from such ingredients. Among them there are some which derive their whole virtue from hence ; and indeed it would be hard to conceive how without such assistance they could lay claim to that appellation, or be productive of any medicinal effects.

The kinds of salt which such waters contain are discoverable by two methods of examination. The first consists in the addition of peculiar substances to the water, from whence certain effects ensue that characterize the salts which produce them : And the second, in evaporating it to a dryness, or till only an earthy matter remains, from whence the salts are afterwards to be separated.

But

But introductory to these investigations, it may not be improper in this place to premise a short and general history of the different species of the properties of salts; which, though unnecessary to many readers, may yet be of such use to others, whose knowledge in chemistry is of small extent, that without it, the following account of the salts which are discovered in the Bath waters would be perfectly unintelligible.

“ Salts, then, are defined to be fossil bodies,
 “ fusible by fire, and congealable again by
 “ cold into little glebes or chrystals; so-
 “ luble in water so as to disappear therein,
 “ and impressing a sensation of acrimony
 “ on the tongue.*”

This definition is general, and takes in the chief properties of all salts whatever; but as there subsist very essential and peculiar differences among them, they have been aptly divided into three distinct classes, which are distinguished by the terms, acid, alkaline, and neutral.

The

* Note on *Boerhaave's Chemistry*, by *Shaw*, vol. 1. page 104.

The properties of acid salts are their particular taste and smell ; the fermentation they produce with alkaline and earthy substances ; their dissolving metals, and their striking a red colour with the juices of the sun-flower, roses, and violets.

Alcalies are characterized by their maukish urinous taste ; by their effervescing with acids ; by their precipitating metals and other substances dissolved in them ; by their readily uniting with oils and sulphureous bodies ; by their changing the juices of the sun-flower, roses, and violets green ; and lastly, by their dissolving and running into a fluid state when exposed to the air.

The third class of salts, which are termed neutral, are constituted by the union of the preceding ones, and when perfect, neither ferment with acids or alcalies, nor indeed possess any of their properties. They are also sufficiently distinguished by their power of crystallizing, or shooting into regular distinct forms, which belongs not to either of the others.

As all salts whatever are comprehended under one or other of the preceding classes, and possess

possess the peculiar marks of their tribe, they are in a great measure to be discovered by the following experiments, as appears from their application in the present enquiry.

1. Having mixed some syrup of violets with the Bath water, it soon changed to a deep vivid green.
2. With a solution of quicksilver in aqua fortis it immediately became opaque and yellow, and an orange coloured powder precipitated.
3. Acids cause no effervescence with the water, but their acrimony is greatly sheathed and destroyed by it.
4. Neither with alcalies is any fermentation excited.
5. A solution of silver in aqua fortis turns the water milky, and the metal subsides.*

From the two first of these experiments we learn that the water contains an alcaly.—From the third, that this alcaly is either but in a small quantity, or that it is not of a very active nature.—From the fourth, that no acid in a

D

separate

* The waters of each bath shew the same appearances.

separate unmixed state has any share in its composition.—And from the last, that common marine salt makes a part of its contents.

As the phænomenon produced in the second experiment admits only of the following solution, its explication therefore becomes an evidence for the veracity of that deduction which was drawn from it. For the menstruum in which the quicksilver is dissolved being a strong acid, is on its mixture with the water changed to a neutral state by the alkaline principle which exists there; and being thus so much altered from its original nature, it consequently is now no longer capable of sustaining that mineral.

To explain why milky clouds are generated in the water by dropping into it a solution of silver in aqua fortis, and why from thence, together with the precipitation of that metal, we conclude it contains common marine salt; it must be observed, that the two most perfect metals, silver and gold, dissolve each in its own peculiar menstruum, so as that the one is not in the least affected by what proves a solvent for the other.—Thus silver dissolves in aqua fortis, but gold does not.—Again, gold dissolves in aqua regia, (a liquor made by the
com-

combination of aqua fortis with marine salt) but silver is not in the least acted upon by it. When therefore the solution of silver is mixed with the Bath water, the common marine salt which is contained in it, uniting itself with the aqua fortis, produces that peculiar menstruum, (the aqua regia) which acts only upon gold: In which case, the silver must necessarily be discharged from a fluid now rendered incapable of dissolving it; and thus for a time it swims about in the water, obscures its transparency with milky clouds, and at length precipitates to the bottom of the glass in which the mixture was made.

It has been observed of neutral salts, that they alone have the power of congealing into glebes or chrystals; the figures of which being extremely different, and each salt always retaining its own peculiar shape, this property becomes one of the most distinguishing signs of their several species.—Thus common marine salt produces chrystals which are cubes: Those of nitre are prismatic: Those of alum octogons; and so on of the rest.

Now to obtain the salts of a mineral water in this perfection, that from their proper shape

it may be determined to what class they belong, it is necessary to evaporate large quantities of it, that all the fluid part being dispersed in vapours, the earthy and saline ones may alone be left; from whence the latter are to be separated by digestion in warm distilled rain water, which being filtered and gently evaporated till a fine skin covers its surface, must then be kept in a cool place, and thus the salts will in time be found chrysalized in their distinct figures.

If the Bath water is treated according to these directions, it exhibits two species of salts, whose forms are elegantly expressed in the following plate, Fig. 1.

But I shall defer the particular description of these for the present, to take notice of some phænomena which arise during the methods made use of to obtain them.

Whilst the water evaporates, its surface is continually covered by broad thin flakes, which, as they gradually increase in their weight by the addition of similar particles, at length become too heavy to be supported; and by subsiding, give room for others of the like nature
to

to succeed. The sides also of the vessel in which the evaporation is performed, are encrusted with a hard, saline, white matter, extremely pungent, and biting on the tongue.

When the water is entirely exhaled, the residuum consists of the before-described flaky substances, and (if the heat used during the process has been moderate) is of a *brown* colour, has a soft soapy feel, and a *balsamic* smell. On the contrary, if the heat has been violent, it is deprived of all these properties. The *balsamic* smell is not to be perceived; its floculi become brittle and harsh to the touch; and change their natural brown for a snowy whiteness. Which alterations are other incontestible proofs of a bituminous principle that originally existed in this residuum; by whose escape the above changes necessarily ensue.

This residuum has no distinguishable saline taste, but is rough and gritty in the mouth.—It ferments violently with spirit of vitriol, and other acids; as do also those saline concretions which adhere to the sides of the evaporating glasses. They raise no disturbance whatever with alcalies, and being digested in pure dis-

tilled rain water, they communicate to it the property of turning *green* with syrup of violets.

Such appearances confirm those conclusions, which were drawn from the changes the Bath water underwent by the mixture of particular substances with it; and are further demonstrations of its containing an alkaline principle. But whether this is a salt, or only an earthy matter inclining to that nature, we must be determined by the following experiment.

Let a large quantity of the water be evaporated till only a small portion of it remains; this will be extremely salt, and if poured off from the earthy parts, and exhaled to a dryness, we shall thus collect this principle by itself, and pretty free from every other addition.

The saline mass here obtained neither ferments with acids, nor produces any change of colour with syrup of violets: Nor does the white concretion, which sticks to the sides of the evaporating glasses, yield any other than a perfect neutral salt, when dissolved and chrysalized; and its filter'd solution shews no signs of alcalescency.

Hence

Hence this alkaline principle does not consist in a *salt*, but in an *earthy matter*; of which we shall hereafter speak more particularly.

It has been observed, that there are two species of salts in the Bath waters: The first of which resembles in its figure Dr. *Lister's* calcareous nitre, and is undoubtedly the same salt. * Its chrystals are long and slender; they consist of four unequal sides, the upper and inferior being broader than the lateral ones. At one end, the chrystal terminates in two triangular surfaces; at the other, in two inclined planes. Fig. 2.

This salt is at first remarkably cool in the mouth, but impresses a strong bitter taste as it dissolves. It is free from any acrimonious biting sensation; nor has it that nauseous flavour which the common purging salts leave behind them. Being flung into milk which is near

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boiling,

* Salis calcarii chrystalli tenues, longæque sunt: iisque mediis quatuor latera parallelogramma sunt at ferâ inæqualia; ex alterè vero parte, ipse mucro ex binis planis lateribus triangularibus formatur, ex altera & adversa parte duo plana quadratur habet, perpetuò ad contrarium cum priore illa parte positum.——*Tractatus de Fontibus Medicatis Angliæ.*

boiling, it curdles it, and produces a *whey*. It ferments gently with spirit of vitriol, and yields a gas, which smells like aqua fortis. It does not ferment with alcalies, but turns syrup of violets of a faint green. Being flung on a red-hot iron, it immediately melts, and runs into a fluid state like water, hisses, forms bubbles, and at length changes into a white calx. On live coals it produces the same appearances. If it is put before a fire, or kept in a hot place, it loses both its transparency and hardness; becomes white, and falls into a powder on the slightest touch.—We confined a few ounces of this salt in a glass retort, and gave it a strong fire for several hours. There at first came over into the receiver a considerable quantity of a tasteless, insipid water, which gave no signs, either with acids or alcalies, or syrup of violets, of its being any other than a pure elementary fluid. This was followed by a small portion of an acid spirit. The mass which remained in the retort was an alkaline earth.

A solution of this salt precipitates silver dissolved in aqua fortis; which property is, I believe, not essential to it, but is owing to small portions

portions of marine salt, which in the microscope are seen adhering to its crystals.

'Tis this marine salt which makes the second species in the composition of these waters, as is evident from its possessing the following signs: 1st. The cubical figure of its crystals.—2d. Its peculiar salt taste.—3d. If the oil of vitriol is dropt on it, there arises an acid suffocating gas, or the true spirit of sea salt.

In 56 cubic inches,* or one quart wine measure of the King's-Bath water, there is found, both by its evaporation and distillation, 34 grains of residuum. The proportion of the water therefore to its fixt contents, is as 417 to 1.

Twenty grains of this residuum dissolve in rain water, the other 14 subside. Hence the former are salt, the latter earth.

These two species of salt exist in the King's-Bath water, under different proportions. The neutral being to the marine salt, as 2 to 5; con-

* The wine gallon is supposed to contain 231 cubic inches, but from an experiment made in 1688 before the Commissioners of the excise, &c. it was found that the precise content of the standard wine gallon kept in *Guildhall* was but 224 cubic inches.

consequently in a wine quart we have 5,714 grains of the neutral salt, and 14,285 grains of the marine salt.

One quart of the Hot-bath water gave 30 grains of residuum; 17 of which were earth, and 13 salt.

The same quantity of the Cross-Bath also left 30 grains of residuum, 10 of which were salt, and the remainder earth.

The proportion therefore of the fluid parts to the solid, in both these waters, is as 472, 6 to 1.

The water of the Hot-Bath contains a larger share of the neutral salt than the Cross-Bath.

After these salts are entirely separated from the residuum, there remains an earthy powder of a white colour, and a perfectly insipid taste.

Its peculiar nature will be discovered by the following experiments :

1st. It does not ferment with oil of tartar, or with any of the alkaline class.

2d. It gives a faint green to syrup of violets.

3d. It

3d. It ferments violently with spirit of vitriol, and all other fossil acids.

4th. After being calcin'd, it fermented more strongly with acids than before, but did not increase the heat of common spring water, nor did any hissing or ebullition succeed on their mixture.

5th. I added to this earthy matter a little borax and tallow, and then placed it in the heat of a wind furnace for some hours. When the mass had grown cold, and was pounded, the loadstone drew several small particles of iron from it.

From these experiments we may with certainty conclude, that the earthy part of the Bath water is of an alkaline nature ; but it does not seem to be derived from limestone, as in that case it would have shewn its peculiar properties after *calcination*, and consequently have produced an ebullition with spring water, and increased its heat.

It also appears that the calx of the *chalybeat* principle of these waters remains in their residuum, and may be restored by proper methods
to

to its genuine metalleity ; which is surely a convincing proof, that the general opinion of its being *volatile* is erroneous.

The earthy ingredient of these waters is also to be obtained, by only mixing the salt of tartar or its lixivium with them ; for immediately on this addition, large white clouds appear, and at length precipitate in a fine powder ; which (after being well washed in several waters, to separate any part of the alcaly which might have adhered to it) fermented violently with all the mineral acids in general.

This powder shews no signs of inflammability whatever ; it is merely an absorbent, alkaline, calcarious earth.

The last principle which we find in the Bath waters is air.* It has been observed by Dr. *Hales* that they contain less of this element than other mineral

* The properties of fixt air were not discovered when this Tract was first published. Much of the virtue of mineral waters, may, I apprehend, be justly ascribed to it. But the Thermæ, or Hot Mineral Waters, contain a still more powerful principle, namely Fire ; with whose nature and properties philosophy is not yet acquainted ; and till it becomes acquainted with them, our reasonings on the causes of their medicinal virtues must necessarily be defective.

mineral or even common waters do ; and by following his method of separating the air from fluids*, I obtained from a Florence flask of the King's-Bath water, by 160 degrees of heat, a bubble, whose diameter was only $\frac{5}{8}$ of an inch ; from the Hot-Bath water one of $\frac{3}{8}$; and from the Cross-Bath about the same quantity : whereas a Florence flask of common pump water yields a cubic inch of elastic air.—Those of *Bristol* and *Holt* a like portion ; and *Piermont* water near twice as much.†

* See *Veg. Statics*, vol. 2, page 270.

† See *Veg. Statics*, vol. 1, page 181.

C H A P. V.

How the BATH WATERS are generated.

WE learn from the preceding analysis, that elementary fire, air, an alkaline earth, a neutral salt, common marine salt, iron, and a fine aromatic balsam, mixed together and dissolved in pure water, constitute these fountains of health.

How spring water becomes possessed of those rich ingredients, or in other words, how the
Bath

Bath waters are generated, I shall now attempt to explain ; and if I am able to make an artificial water, which shall resemble the natural one in its most essential characteristics, it is all that can be expected in so difficult an undertaking.

It has already been observed that these waters bring up with them a very peculiar sort of sand, which is composed of an alkaline earth, iron, and brimstone.—Upon the supposition then that common spring water, by running through beds of the same materials, becomes impregnated with the same principles which we find in the Bath waters ; let us try how far the imitation of them will succeed, by making this the foundation of our enquiry.

I mixed with equal quantities of filings of iron and of stone brimstone,* both reduced to

* It is most probable that Bath water is produced by common spring water running through beds of pyrites ; a mineral chiefly composed of iron and brimstone. “ Circa thermas æstuantès ita statuendum esse arbitror, viz. particulas aerias uná cum aquis pluvialibus in altam tellurem descendentes, ibidemque mineræ salino-sulphuriæ occurrentes, æstum, caloremque admodum intensum in eadem excitare ; & demum aquarum scaturagines e minera eo modo exæfluante profluentes, thermas constituere.

to a powder, about four times their weight of free-stone sand. This composition was moistened into a paste with common water. In about sixteen hours it became so violently hot as to break in pieces a strong earthen pan in which it was kept; and it had lain scattered, and smoaking on the ground, for some time before the accident was discovered.

This accident rendered a repetition of the experiment necessary; which being made in a metalline vessel, the success was equal to expectation; for the water poured on this mixture grew hotter than that of the bath, and having inadvertently suffered a Farenheit's thermometer to sink too deep among the ingredients, the mercury was flung up to the utmost extent of the tube, whose scale measured 393 degrees, and the bulb of it burst.

This water, in which the above composition was digested, threw up a little scum on its surface, and deposited an ocre on the sides
of

of the vessel which contained it.* It was transparent and vivid. It had an agreeable chalybeat taste. It instantly turned purple with tincture of galls—green with syrup of violets—of an orange colour with a solution of quicksilver in aqua fortis—milky with oil of tartar per deliquium—it precipitated a solution of silver, and shewed no change or alteration whatever with acids. In all which particulars it perfectly agrees with the Bath water. Some difference was however observed between them, which arose from the different proportions of their several ingredients; and not from the defect of any particular one, in the composition of the artificial water; which contained more of the chalybeat, and less of the alkaline principle, than exists in the other.

The artificial Bath water left by evaporation a residuum of a brownish colour, which gave no flame on a red-hot iron, but communicated

* The Guides clear the surface of the baths of this kind of scum every morning before the bathers come in.—An ocre may be scraped off the sides and stone seats of the baths, which are in most places tinged by it of a yellowish colour.

municated a fine amber tincture to spirit of wine : And part of it being digested with distill'd rain water, and the solution crystaliz'd, the same species of salts were obtained, as those which the natural water yields by the like treatment.

From this analogy between the artificial and the natural waters, it is evident the latter are generated in the manner I have supposed. Those small differences which have been noticed between them will scarcely be called objections to this theory: For it would be absurd to imagine that chemistry can afford us the power of making so perfect a composition, as that which nature produces. It is the province of this art to imitate her operations, and from that imitation to explain them. For, as Mr. *Lemery* observes, * “ Le meilleur moyen d’expliquer la
 “ Nature, (s’il pouvit être employé souvent)
 “ ce feroit de la contrefaire, & d’en donner pour
 “ ainsi dire, des représentations en faisant pro-
 “ duire les mêmes effets a des causes que l’on
 “ connoîtroit, & que l’on auroit mises en ac-
 “ tion. Alors on de devineroit plus, on verroit
 “ de ses yeux, & l’on feroit sûr que les Pheno-
 E “ menes

* Hist. de l’Acad. Roy. An. 1700.

“ menes naturels auroient les memes causes
 “ que les artificiels, ou du moins, des causes
 “ bien approchantes.”

It now only remains, that we shew, how from the action of these bodies on each other, the several principles of the Bath Waters are produced. To this end, it must be premised, that iron powerfully attracts acids; and that brimstone is composed of an acid spirit, a bitumen, and an alkaline part.—When these two bodies then come into close contact, a solution of the iron, by the acid spirit of the brimstone, immediately commences. By this means, that metal is converted into a salt or vitriol; which salt or vitriol makes the *chalybeat* principle of the Bath waters.

When the acid spirit is thus separated from the brimstone, its bituminous and alkaline parts only remain: The former of which being rendered soluble in water by the assistance of the latter, constitutes the *sulphureous* principle of the Bath waters.*—Hence we see it is impossible

* Cette Balsam tire du souffre commun a une odeur grate & balsameque.—Analyse du Souffre par M. Homberg.—*Memoirs de l'Acad. Royal, An. 1703.*

fible that these springs should contain common *brimstone*, as in their production the texture of that mineral is entirely destroyed, and it is robbed of *one* of its *constituents*.

The *alkaline* principle of the Bath waters is supplied either from freestone sand, or some chalky earth: Probably from the latter, as the artificial water was found to contain less of this ingredient than the natural one.

Marine Salt, or Sal Gemmæ, (for they are both the same) is so universally distributed through the bowels of the earth, that there are no spring waters but what are impregnated with some portion of it.

The calcarious nitre, or neutral salt of these springs, is composed of a vitriolic acid, and an alkaline earth; and does not, I believe, primarily exist in them, any more than it does in the artificial water, which has been made in their imitation; but is generated while the waters evaporate. For heat applied to the Bath waters, as well as to all other chalybeats, deprives them of their properties of tinging with galls; that is, it separates the acid from

the iron by which it was rendered miscible with the water, and the metal subsides : While the acid spirit, in which it was before dissolved, is absorbed by the alkaline earth, and this neutral salt is formed.—Hence we see the reason why no *vitriol* or *salt* of *iron* is ever to be found in the *residuum* of chalybeate waters ; why this principle exists there in the state of a *calx* ; and why from all waters of this class we obtain a *neutral* salt of the same kind.* *Hoffman*, speaking of this salt, observes, “ † That it cannot
 “ be discovered by the addition of any parti-
 “ cular substances to the water, but readily by
 “ exhaling it to a dryness : ” —For which, if the above supposition is admitted, we can be at no loss to account.

The last thing to be explained, is the remarkable heat with which these waters are endowed ;

* In Pyrmontanis, in librâ unâ Salis medii grana vii ad x continentur ; in Egranis et Salterensibus grana plura ; in Sualbecensibus & Spadanis, pauciora.—*Heister de Aquar. Medicatarum naturâ et usu.*

† Quod reagentium ope difficulter admodum, vel plane non erui & detegi possit, sed sola Liquoris exhalatione & resiccatione sese conspiciendum præbeat.—*Hoffman de Elementis Aquarum Mineralium, &c. Sect. 50.*

dued ; and here, if I have recourse to the ancient opinion, that fire is an element *sui generis*, and that it makes a part in the composition of all bodies whatever ; I shall not be unsupported by many great names among the moderns, such as *Homberg*, *Lemery*, *Gravesande*, and *Boerhaave*. It may be also be added, that the late discoveries in electricity tend very much to confirm and establish this doctrine. I chuse therefore to ascribe that great degree of heat which is found in the Bath waters to elementary fire, as to its most probable cause. *This*, if it exists in any bodies at all, does so most eminently in iron and brimstone. It should seem then, that these waters, by washing off, separating, and taking up, in their passage through the earth, the particles of these minerals, set at liberty this imprisoned *element*, which thereupon communicates its warmth and activity to the fluid.

I know not, whether I have given the reader all the satisfaction he expected in the perusal of the foregoing sheets. If I have not, I can only apologize for my deficiencies in the
words

words of the great Mr. *Boyle*, who observes, that “ To discover the nature of mineral waters is a far more difficult task than those who have not tried would imagine.”



An Explanation of the Copper-Plate.

FIG. I.

SHEWS the Salts of the Bath Water, as they chrystalized at the bottom of a glass pan.

The *Squares* are Marine Salt,

The *long Chrystals* are calcarious nitre.

The *irregular Figures* are made up of both, and are occasioned by these salts shooting too near together, and thence preventing each other's Chrystals from forming in their own, determinate shape.

FIG. II.

Exhibits a Chrystal of the calcarious nitre drawn from the microscope ; with several portions of marine salt adhering to it.

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B Y
R. C H A R L E T O N, M. D.

S E C O N D E D I T I O N.

Non quæ mihi suggessit phantasiæ, imaginatricis temeritas, sed
quæ phænomena practica edocuere.

SYDENHAM.

T C A R T

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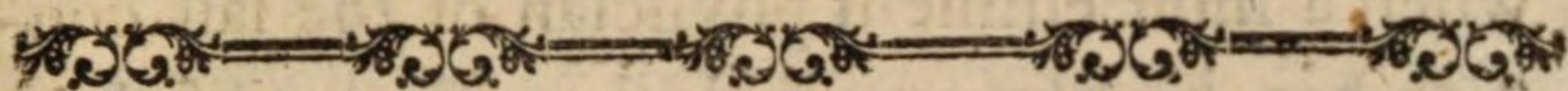
B A T T L E

T H E

R. CHARLES

RECORD

MAN



A N
I N Q U I R Y
I N T O T H E
Efficacy of W A R M B A T H I N G
i n P A L S I E S.

THE design of this Inquiry is to ascertain the question, Whether bathing in the Bath waters be useful or detrimental in Palsies?

However unnecessary such an inquiry may at first sight appear, as we might reasonably expect the experience of many ages should long since have determined this question, yet the diversity of opinions to be met with in writers concerning it is too plain a proof, that the subject demands a still further investigation.

What

What dependance can we have on authority, when a most eminent physician of the last century has highly extolled the efficacy of these springs in paralytic diseases, and the most distinguished one in the present has interdicted their use ?

Willis, in his treatise *De Anima Brutorum*, pronounces the waters of this place to be a remedy superior to all others in the palsy ; and that, where they suit the constitution of the patient, it is impossible to find out any that can be more effectual.*

At the time this favourable testimony was given, these waters were seldom used but for the purposes of bathing only : His character of them must therefore have been chiefly, if not solely, drawn from those happy effects which followed their external application.†

I have

* *Instar omnium vero sunt thermæ nostræ Bathoniensis, quibus (si temperamento ægrotantis aptè congruant) nullum præstantius remedium excogitari potest. Quod factis indicant plurimum a membris resolutis curatorum Grallæ, quasi totidem de morbo hoc divicto trophæa suspensæ. p. 420.*

† *Willis's* treatise, *De Anima Brutorum*, was published in the year 1672 ; but it was not till the year after, that the custom of drinking Bath waters, which had long been discontinued, was again

I have observed this principally to shew, that the opposition of opinions between the Doctors *Willis* and *Mead*, is direct and real; the latter in his *Monita et Precepta Medica* having expressly pronounced, that warm bathing does harm to all paralytics. His words are without any limitation or distinction, “*calidæ vero merfiones omnibus paralyticis nocent.*”

The most respectable authority must give way to the force of facts. Since the establishment of our HOSPITAL at *Bath*, I have seen so many and such manifest proofs of the virtue of these waters in paralytic cases, that, as I am fully convinced myself of Dr. *Mead*'s mistake, I have thought it my duty to communicate to the public the grounds of my conviction; further urged thereto by the notoriety that nervous diseases are continually advancing; the Palsy, which formerly used to be, for the most part, the attendant of worn-out nature, being, in our days, become, but too frequently, the miserable companion of youth.

By

again brought into use by the authority of Dr. *Guidot*; as appears from the inscription on his monument in the Abbey Church.

By a clause in the act of parliament for the better regulation of this charity, it is enacted, that no patient shall be admitted till his case has been drawn up by some person in the place, or neighbourhood, of his residence, and sent to the hospital for the examination of the physicians and surgeons who belong to it; on whose judgments it rests, from the inspection of the state of his case, to determine whether the object recommended labours under a disease in which these waters are found to be beneficial.

All such cases as are deemed proper for admission are registered. Minutes are taken of each patient's disease, age, parish, time of admission, stay in the house, when discharged, and what degree of benefit he received. The original histories of their several diseases, which are sent upon their petitioning for admittance, are also carefully preserved; and thus an exact account of our patients has been kept from the foundation of the hospital to the present time.

'Tis from these records I shall collect the vouchers which are to determine the subject in dispute; and shall lay before the reader a state of our paralytic patients from *May* 1751, to
May

May 1764 : A period of time sufficient for the purpose. For it cannot be doubted, but that the same effects, which these baths have produced in the course of *thirteen years*, may at all times be expected from them, in like circumstances ; as they are invariable in their qualities, and not liable, like most other remedies, whether prepared or unprepared by nature, to change or adulteration.*—But before I enter on this examination, it may be necessary to give a short detail of the causes and symptoms of this disease.

The causes which give rise to paralytic complaints, are for the most part comprized in the following catalogue : apoplexies, internal tumors

* It is well known that the *Romans* were extremely careful to preserve, by great works, their most celebrated medicinal waters. We have a remarkable instance of this fact, in the Bath waters : whose source and manner of conveyance to the places of eruption are so carefully concealed and secured, as not only to have remained undiscovered, but to have been also preserved from any the least injury, though buildings were erected every where round them, and wells dug, for the supplies of common spring water, in every point of the compass.—They have continued unhurt by the ordinary ravages of time ; and change of season does not affect them ; for chemical experiments are attended, in every part of the year, with the same phenomena, if made with equal exactness ; and their heat is shewn by the thermometer to be invariable.

mors compressing the brain and nerves, external injuries, mineral fumes; cholics occasioned by these, or by the use of crude fermenting liquors, or the action of viscid acrimonious bile; extreme cold, excessive indulgence, or violent impressions of the passions, spirituous liquors, scurvy, rheumatism, gout, the suppression of natural evacuations, the imperfect crisis of acute diseases.

The symptoms of the palsy are, sometimes, a total deprivation of the operations of the mind and internal senses; sometimes only a slight abatement of them. It affects either the whole body from the head downwards, except the heart and muscles of respiration, or one side only, or a particular limb. The parts affected are deprived of sensation alone, or of motion alone, or of both; they either swell and are bloated, or waste and decay; they are either too cold, or preternaturally hot. The palsied muscles yield to the power of their antagonists, which are unaffected; hence those parts, as the fingers for example, are drawn inwards when the extensor muscles are paralytic, and the contractor muscles are not affected. The pulse is usually small, slow, and languid; or weak,

weak, quick, and irregular. The body is generally costive, and the appetite commonly voracious.

Such are the out-lines of this disease, and, as its seat is in the nerves or brain, it may readily be conceived, that it must be extremely dangerous in its consequences, and the cure equally uncertain and difficult.

Hence writers have made the most unfavourable prognostics with respect to its event. “It is generally incurable,” says *Celsus*.^{*} And in another place he observes, that “such as are universally seized with the palsy quickly sink under the attack, or if they chance to survive, they seldom obtain a perfect recovery; but for the most part linger on, with loss of memory, in a state of wretched existence.”[†]

In like manner has *Mead* described the unhappy sufferer, “dragging on a miserable life, shaking and tottering, deprived of memory,
F and

^{*} Fere insanibilis morbus est.

[†] Solent autem, qui per omnia membra vehementer resoluti sunt, celeriter rapi; ac si correpti non sunt diutius quidem vivunt, sed raro tamen ad sanitatem perveniunt; & plerumque miserum spiritum trahunt, memoriâ quoque amissâ.

and all vigor of mind ; a spectacle of real misery ; no longer a man, but an animal half dead.”*

Of what powers these waters are possessed to remove, or alleviate, such afflictions, will appear from the following Table : In which, it is presumed, the State of our Paralytics is so marked as to stand in need of little explanation, except in a very few instances.

The first column marks the several species of the palsy ; the last article of which contains the number of Cases, imperfectly, or improperly described in the accounts sent of such Patients for our information. In some of these accounts the parts affected are only mentioned, and no notice taken of the causes which gave rise to the disease ; in others, even less care has been taken, and neither the causes, nor effects are particularized ; but only a general certificate vouchsafed, that the patient is a paralytic. Whereas the cause and effect of the disease, the age of the patient, and the length of time he had laboured under his malady, should have been

* Miseram autem vitam plerumque trahit qui illo morbo (Paralyfi scil.) afficitur ; vis enim anima cum memoria deperditur, & luctuosum spectaculum, non jam homo, sed animal semimortuum, contremat & vacillat. *Monita & Præcepta Medica.*

been circumstantially described. If this rule had been observed, we should not have had so many improper persons sent to the hospital; it would have put a stop to the inhumanity of suffering such poor wretches to undergo the fatigues of long and painful journies, to no manner of purpose; and at the same time, have saved their parishes a very unnecessary expence.

The two columns, which are entitled *Improper*, and *Discharged at their own Request*, may also require some explanation.

In the first of these two columns are contained those, who, from unfortunately having other diseases joined with their palsy, are reduced to a state in which these waters would be detrimental; as dropfical or hectical patients; women far advanced in pregnancy; and, in general, all with whom the confinement and air of an hospital do not agree.

The other comprehends those, who through fear of taking the small-pox, when that disease happens to be *here*, or from unwillingness to comply with the rules of the house, or on account of their own private domestic affairs, desire to be discharged.

A State of the Paralytic Patients admitted into the

Total Number admitted. ——— 1053.

viz.

45	General Palfies
283	Hemeplegias
144	Palfies of the Lower Limbs
3	Dead Palfies
5	Shaking Palfies
237	Palfies from Cyder and Bilious Cholics
40	Palfies from Mineral Effluvia
17	Fevers
27	Rheumatisms
9	Nervous Affections
2	Suppression of the Menfes
1	Miscarriage
1	Lying-in
19	External Accidents
2	Scrophula
24	Extreme Cold
11	Palfies without any assignable Cause
183	Whose Cafes were not properly described.

Bath Hospital, from May 1751, to May 1764.

Cured and Benefited.	No better.	Dead.	Improper.	Discharged for Misbehaviour.	Discharged at their own Request	Eloped.	Total.
28	12	2	1		2		45
204	41	12	20	1	4	1	283
92	21	10	18	1	2		144
3							3
1	3		1				5
218	5	9	4		1		237
38	1	1					40
13	2		2				17
22	3	1	1				27
6	2		1				9
2							2
1							1
1							1
16	2	1					19
1	1						2
19	2		1		1	1	24
9	2						11
139	16	7	12	3	5	1	183
813	113	43	61	5	15	3	1053

Cured and Benefited - - - 813.
 Not Benefited - - - 240.

From this Table it appears that out of 1053 paralytics, (the total number admitted within the time of this Inquiry) 813 received benefit, and 240 little or none.

So irrefragably do these facts support the credit of the Bath waters, that it is almost unnecessary to take notice of an error in this calculation tending to their disadvantage; which is, that among the number 240, said to have received no benefit, there are 61 who could not make a proper trial of the waters, and who were therefore discharged under the designation of *Improper*.

These ought to be struck out of the account, as they prove neither for nor against the question; to which it might be added, that amongst those who left the hospital at their own request, or were discharged by misbehaviour, or who eloped, some, it may reasonably be supposed, had their stay there been longer, might have received dismissions favourable to the reputation of these springs. So that, if we take into our estimate those only who continued in the house, and made a fair trial of the waters, the evidence in their favour will be considerably increased.

increased ; for the state of the account will then be as follows : viz. out of 969 paralytics, there were benefited 813—not benefited, 156.

But before I proceed to make any deductions from the general evidence which this Table affords, I shall give some particular instances of the efficacy of these waters, extracted out of the histories of our hospital patients. These cases, except a very few, are such as being usually sent to us we must needs suppose to be common, and the publication of which I therefore prefer to that of others which are more rare ; as they are more the public concern, and it is on them that Rules of Practice can with propriety be established. To which I must add, that my choice has likewise been directed to such Cases as required little or no medicine, and in which, consequently, the power of these Springs must appear the more clear and decisive.

*A general Shaking Palsy, from the imperfect
Crisis of a Miliary Fever.*

MARY RYAN, of *St. James's, Westminster*, aged 28, after enjoying a good state of health till the beginning of *April 1758*, was seized with a miliary fever, which lasted seven weeks. Sometimes the eruptions disappeared with violent sickness at her stomach, great oppressions of her spirits, and a delirium. The delirium became at length continual and lasted three weeks; after which she recovered her senses, and was free from fever; but all her limbs from the small of her back downwards were numb, shaking, and paralytic. Her urine frequently passed off involuntarily, her stools never. Soon after she had lost the use of her lower limbs, her arms began to be affected in the same manner, and at length her neck and the trunk of her body; so that, when she came into our hospital, *May 5th, 1759*, she laboured under an *universal shaking Palsy*; was incapable of standing without the assistance of two persons, and had not been able to walk for five months.

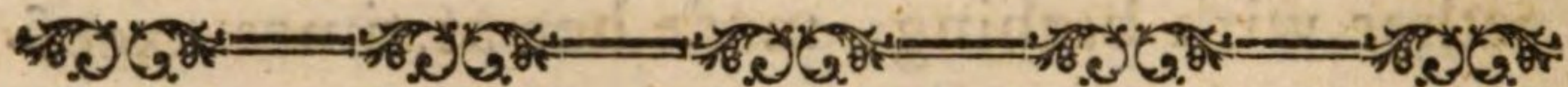
After

After having drank the waters for a month, she bathed twice a week, and continued in this course more than a month longer without perceiving any alteration. Soon after this, upon coming out of the bath, she complained of pain and heat in her hips and thighs, which left those parts extremely sore. From this time the paralytic tremors gradually decreased, and her limbs became stronger after every bathing; so that at length she was able to stand without being supported, and to walk about the ward with crutches. The great heat of the summer, together with bathing, made her at times excessively low, on which account she was directed to take a decoction of the bark occasionally; but continued to bathe twice a week, and to drink a pint and a half of the waters every day till the 12th of *December*, 1759, at which time she was discharged (after having been seven months in the hospital) perfectly cured.

When fevers go off without a due crisis, much mischief may justly be apprehended; for besides other complaints which have from hence their origin, the relics of the disease will not unfrequently affect the nervous system, and give rise to Palsies.

The

The present case is a proof of this observation, as well as a remarkable instance that the Bath waters are extremely efficacious in such kinds of palsy; of which we have further proofs, in case the first and second, among the Dead Palsies, and also in case the second, of Palsies of the Lower Limbs. But it will be here proper to observe, that Shaking Palsies, unless they are the consequence of an imperfect crisis of some acute disease, or of suppressed gout, seldom receive any considerable benefit from these waters.



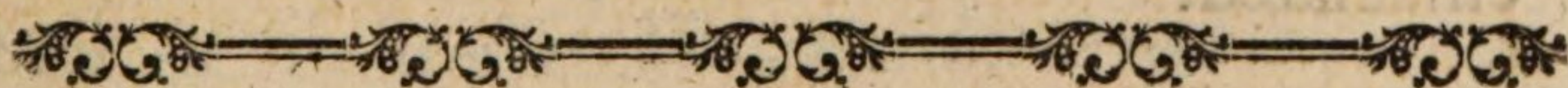
*A general Palsy, from a Suppression of the
Menses.*

ELIZABETH JORDAN, of the parish of Balden in Oxfordshire, aged 19, had her menses suddenly suppressed, during the second time of their appearance, by catching cold in rainy weather; and was struck with a general palsy. The catamenia were restored to their regular periods, some months after, by emmenagogues and bathing in common warm water. By the repeated use of the latter, she recovered
in

in some degree the action of her arms and hands, but found no alteration in her lower limbs, except that, while they were immersed in warm water, their sensibility and motion returned, which were presently lost again upon their being taken out.

She staid in the hospital 251 days, and by drinking the waters in small quantities, and by bathing in them as often as her strength would permit, was discharged entirely cured.

This patient's case shews not only the good effects of bathing in common warm water, but at the same time the superior power of our baths in palsies; as the cure received by the former was only partial and temporary, but that from the latter compleat and permanent.



A general Palsy, from Cold.

SAMUEL BLISS, a common soldier, from frequently lying on wet ground, during a winter's campaign, had his health much impaired, and became universally paralytic.

All

All proper care was taken of him while abroad; but finding no relief, he was sent home and admitted into the hospital at *Ipswich*; from whence he was removed to *St. Bartholomew's* in *London*.

Being discharged from this latter hospital incurable, he was brought to *Bath*; where he received considerable benefit, notwithstanding his palsy was of four years continuance.

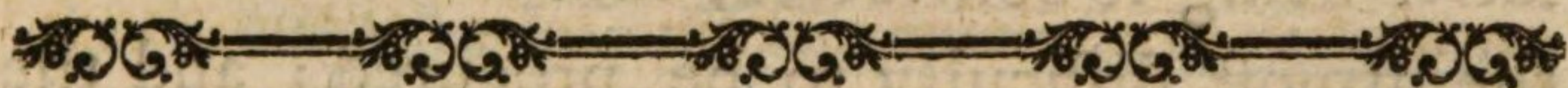
Some time after he had left our hospital he relapsed, and petitioned for re-admission. His paralytic complaints were now accompanied with severe spasmodic pains, which more particularly affected his arms, hips, and small of the back. The muscles of the thighs and legs were contracted, and those of the arms greatly emaciated.

The severity and obstinacy of his disease, which was much augmented in consequence of this relapse, required a long perseverance in the use of these waters; however, at length it gave way to their powers, and he was a second time, though not till after a residence of 308 days, dismissed *much better*.

We

We have numbers of cases on our books of bargemen, watermen, fishermen, &c. whose trades oblige them to go into cold water while hot with labour, or to stand in it for a long time, in consequence of which they contract paralytic complaints; to which gentlemen are not unfrequently liable, by doing the same thing for their amusement, which the poor are obliged to do for a livelihood.

We commonly find these waters very efficacious in palsies which arise from cold.



* *A general Palsy from an external accident.*

GEORGE DRINKWATER, labourer, fell from a high tree and pitched upon the back of his head. This accident was followed by a paralysis of all his limbs, an involuntary and insensible discharge of his urine, a most obstinate retention of the fæces, a swelled tense belly, frequent convulsions of the abdominal muscles, and excruciating pains in that region.

These

* On the death of Dr. *Oliver*, his medical papers were put into my hands, with liberty to make such use of them as I pleased. I am indebted to them for this case, as well as for all those which are marked with an Asterisk.

These latter symptoms were somewhat alleviated before he was sent to our hospital, (which was above a year after the accident) tho' with respect to his palsy he was still in a very bad condition. But it soon gave way to the efficacy of these springs; for he was enabled, after being a patient only 46 days, to return home greatly relieved.

In this case the different effects occasioned by the fall on the sphincter muscles of the bladder and rectum are very remarkable: The latter being so contracted, that stools were with the utmost difficulty to be procured; and the former so relaxed, that the urine was continually and insensibly discharged.



Hemiplegia of the left side from an Apoplexy.

RICHARD DAVIS, aged 60, was seized with an apoplectic fit, which terminated in a hemiplegia of the left side. The palsied limbs were deprived of all motion, and their sensation was likewise greatly impaired. He continued in this state, receiving no benefit from any medicine he made use of, for seven months; when he became a patient in our hospital, *May* 17, 1758. Having

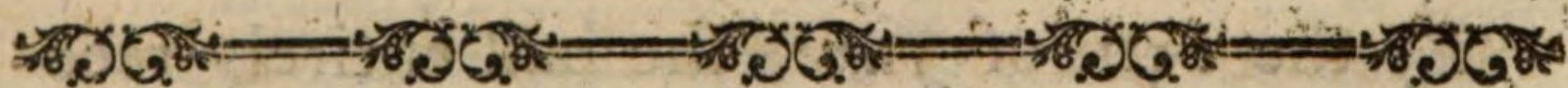
Having been duly prepared, he began with the waters; of which he drank a pint and a half for some days, and then went into the bath twice a week. By these measures he soon perceived an abatement in his disease, and advanced fast in his recovery, till the beginning of *July*; when his progress was stopped, the waters ceasing to make further impressions. On this account I ordered him to abstain from them totally for ten days, or a fortnight, and during that time to take an electuary composed of mustard seed and valerian. At the expiration of which time he left off the medicine, it having done him no service, and resumed his course of drinking and bathing; to which was added a strong stimulating liniment to be rubbed on the spine of the back, after rising from the bath. He quickly became sensible of the good effects of this course, the operation of which was so powerful and speedy, that he left the house on the 25th of *August*, perfectly free from his complaint.

If the age of this patient, the cause of his disease, and the severity of its symptoms are considered, much credit will be derived to the
Bath

Bath waters by the cure. The effects of the waters, I am persuaded, were greatly promoted by the season of the year in which they were used. Our hospital affords frequent opportunities of observing, how much their power depends on the state of the atmosphere; or rather, how much more easily diseases give way, when the virtue of our waters is not checked by the severity of the season; of which a remarkable instance occurred in the winter of sixty-three; when a cold tempestuous season setting in about the beginning of *November*, and continuing till the end of *February*, scarce a patient, during that time, found the least amendment; on the contrary, no sooner was the weather changed for the better, than almost all of them were immediately sensible of the efficacy of these Springs. How it ever, therefore, became a custom to discontinue them in the summer, and to limit their use to the less kindly parts of the year, is as difficult to conceive, as it is easy to shew the impropriety of such a practice. It is evident, that our ancestors thought the warmer months a properer time for their use, from the particular provision in a small hospital built in this place by Sir
Thomas

Thomas Bellot, secretary to Lord Cecil, in the reign of Queen *Elizabeth* ; which admits and maintains, by a weekly allowance, a few persons from the beginning of *April*, to the end of *September* ; but affords no supply for the remaining part of the year.

I would not, however, be understood to mean, that the weather may not be improper in the very hottest part of the summer ; but, as in our variable climate the interruptions by excessive heat are few and of short duration, I can see no reason for the general prejudice against the use of our Springs in the summer months ; especially, when to my own observation, I add the experience of our ancestors, and the practice now observed, if I am rightly informed, with respect to every other warm mineral water in *Europe*.



Hemiplegia of the right side, from the ceasing of the Catamenia.

MARGARET BATEMAN, aged 50, had in general been healthy till about six months after the menses had left her, when she

G

suddenly

suddenly fell into a fit, and remained senseless a considerable time. Upon coming to herself she found her speech was lost, her mouth drawn to one side, and the right leg and arm deprived of motion. She was blooded, though not till four days after the seizure, which was the only thing that was done for her. In *April*, 1759, she was sent to our hospital, when she could not stand, or make the least use of her arm, and her speech was scarcely intelligible.

She was again blooded, and took several doses of opening medicines, before she was permitted to meddle with the waters. After which preparation she drank them in moderate quantities for some time, then went into the bath, and on the days she did not make use of it her limbs were pumped.

By the 15th of *June*, she had entirely recovered her speech; her arm was almost well, and she had perfectly regained the power of extending and contracting her fingers. Her leg was also much better, and with very little assistance she could walk.

From

From a continuance of this course, without any other helps, she mended daily, and on the 11th of *July* was discharged greatly recovered.

I have observed, that, in paralytic affections arising from causes peculiar to the sex, these waters prove singularly beneficial. Of which, besides the present instance, we have others in *Case the second*, among the General Palsies; *Case the third and fourth*, among the Hemiplegias; and in *Case the second*, of Palsies of the Lower Limbs.

In Palsies which happen either at the approach, or cessation, of the Catamenia, a pretty free use either of the lancet, or cupping glass, as well as of cathartics, will generally be requisite, before a course of these waters can be advantageously commenced; and a repetition of these evacuations will most likely be necessary during the continuance of it.

* *Hemiplegia of the left side, from catching cold in a lying-in.*

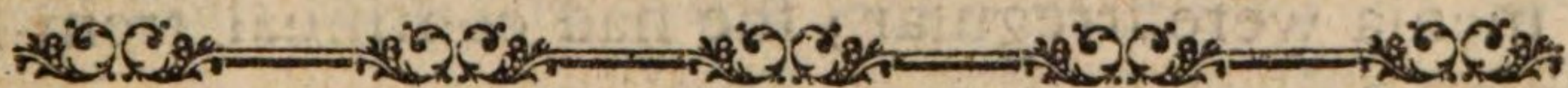
ELEANOR THORNTON, aged 35, by a cold she caught a few days after delivery, had the lochia stopped, which brought on a palsy of the left side. At first she was deprived of her senses, and lost her voice; her face was much distorted, and the mouth so drawn to one side, that when she endeavoured to swallow any liquid it ran out on the other.

These symptoms, however, disappeared in a few days; but her arm and leg remained motionless and void of sensation. The action of the latter was, indeed, in some little degree recovered just before she came here, (which was between five and six months after the attack) so that she was able with assistance to creep about her room.

As, notwithstanding her complaint, she had suckled her child, her breasts were full of milk at the time of her admission; which circumstance prevented her drinking the waters for
near

near a month. She then began to drink them every day, and to bathe twice a week. In proportion as the weather grew warmer, the benefit she received by them increased; and in the months of *May* and *June* she found them particularly efficacious. But in *July*, the house becoming too close and hot, she was discharged, with orders to return if she found it necessary. As she never petitioned for a re-admission, it is presumed that time, air, and exercise completed her cure.

She had been a patient 276 days; and when she left the hospital she could walk (though the leg still remained weak) without any assistance; had quite recovered the motion and strength of her arm, and in a great measure the use of her fingers.



Hemiplegia of the right side, from frequent miscarriages.

MARY BALDEN, 36 years of age, was reduced by frequent miscarriages to a very infirm state of health, attended with convulsion

fits. These fits returned frequently in a day, and followed her for a considerable time: at length they entirely left her, and soon afterwards she was struck with a palsy of her right side.

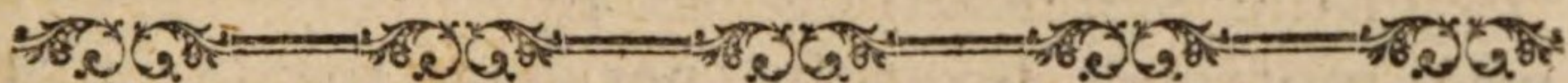
She was blooded, took various medicines of the cordial and nervous kind, and had blisters applied to the parts affected; which so far restored the action of her leg that, with help, she was able to walk. But her arm still continued useless, and with little or no sensation: The hand hung from the wrist without power in the muscles to raise it, a large swelling arose on the back of it, and the fingers were contracted, and drawn into the palm.

Besides these paralytic complaints, her health in general was much impaired; for the catamenia were irregular; she had continual tremblings and flutterings of her heart, with a variety of other nervous affections: Her appetite was lost, and her bowels obstructed.

The course taken for her recovery was the constant use of these waters, both internally and externally; with the occasional assistance
of

of warm stomach purges, and nervous medicines. The success of this plan corresponded with her wishes; her nervous symptoms soon disappeared, her general health was in all respects restored, and she regained the perfect use of her palsied limbs.

She came into the hospital the 8th of *October*, and left it the 19th of *December*.



Hemiplegia of the left side, from pain.

MRS. WHITBY, aged 23, from a severe pain, which suddenly, and without any assignable cause, affected her whole left side, was, in a few hours, deprived of its use. The palsied parts lost all sensation; the discharges of both stool and urine were involuntary; she was long deprived of sleep, which opiates could not procure; the most powerful medicines produced no effect, and the limbs were covered with blisters without exciting in them the least feeling.

On failure of these measures, she tried Electricity. The shocks were given first on the

neck and shoulder, and then gradually down to the toes. She felt them in a slight degree on her neck and shoulder, but no lower; and particularly the foot, though the strokes were so often repeated as to turn the skin black, still remained insensible to them.

She was now sent to *Bath*, seven months after her seizure; at which time she had neither feeling, nor motion, of the palsied side. She was moreover feverish, nervous, feeble, and emaciated; her nights were restless, her appetite destroyed, her bowels costive, and the catamenia deficient.

Much preparation was in this case necessary. As soon as it was thought proper, she drank the waters of the Cross-Bath in small quantities; which increased her appetite, restored the peristaltic motion of her bowels, and gradually procured her strength enough to enter upon bathing.

She had not been many times in the bath, before the catamenia became sufficient; and being thus far advanced in her recovery, she was now ordered to have the palsied parts
pumped,

pumped, while in the bath. Her dead side, after being a few times pumped, perfectly regained its feeling, and soon afterwards she was able to move with crutches.

These benefits increasing as the means were continued, she so far got the better of her disease as to walk the streets with the help only of a common stick. But as this poor woman unfortunately could not be received into the hospital from being unable to produce a parish certificate, which the act of parliament requires, her stay *here* at this time was not so long as it ought to have been; though long enough to become a proof of the virtue of these waters, and to do honour to that private bounty by which she was supported from the beginning of *December*, the time of her coming, to the end of *April*, when she left this place: To which she returned about a twelvemonth after, and was then so happy, as to have her palsy entirely removed.

When this patient was first brought here, she was not only in an improper state for drinking the waters, on account of her fever, but when that was removed, she still continued too
weak.

weak to bathe. For when the palsied parts, by a long continuance, or a great severity, of the disease are grown totally flabby and inelastic, they do not second or assist the activity of our baths, which operate like a temporary fever; by whose stimulus it probably is, that the nerves regain their natural powers. This, however, is very certain, that when such a state of debility and feebleness prevails, little or no effect can be produced by bathing, unless the waters are drunk for some time before the patient is put into the bath; by which means he will possibly obtain such a degree of strength, as may enable him to receive advantage from it.

The unsuccessful use of electricity in this case, corresponds with what the late Dr. *Harrington* told me, that when it first became a fashion to electrify for medical purposes, he often tried this experiment on the hospital paralytics, but without success.

Several instances have occurred to me which support this remark, and among others the following one,

A young gentleman, after passing a very intemperate evening, was, on his return home,
flung

flung from his horse, and, being alone, lay all night in the road. The shock he received by his fall was so great, that many days passed before the assistance of a very eminent physician could restore him to his senses; when it appeared the fall had occasioned an hemiplegia of the left side.

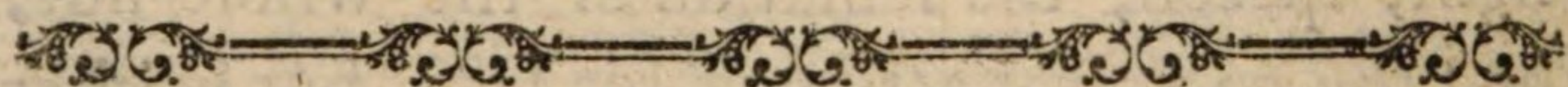
He was sent to *Bath*, as soon as he could bear the journey. On his arrival, I found his leg and arm without motion or sensation; both his hearing and eye-sight, on the paralytic side, were extremely imperfect, and his speech so inarticulate as to be scarcely intelligible.

By the use of the waters, and other necessary measures, he regained his hearing, eye-sight, speech, the sensation of the whole side, and the compleat action of his leg; but neither bathing or pumping, with every aid that could assist their powers, had any effect on his arm; it remained always bent at the elbow, with the fingers shut into the palm of the hand, frequently agitated with convulsive catchings, but incapable of voluntary motion.

This disappointment suggested to him the trial of Electricity; and, as the proposal was
his

his own, he underwent it with the greater resolution. He used it every day for a considerable time; gently, indeed, at first, but afterwards with a degree of violence I could by no means approve. The operation made the arm sweat profusely both during the time and for some hours after, but never, in the least, contributed to restore its use.

Palsies which are owing to pain are greatly relieved by these baths. The woman's case last mentioned, as also the *first case* among the Dead Palsies, and the *first* of that division which comprehends those who were paralytic of their Lower Limbs, are sufficient evidences of their power in this species of the disease.



* *Hemiplegia of the left side, from a Convulsion Fit.*

ANN LUCAS, aged 12, was suddenly seized with a convulsion fit; which, after most violent strugglings, took away the use of her left side. A few weeks after the beginning of her complaint, she became a patient in the *Westminster*

minster Infirmary ; where, among other remedies, she (as Dr. *Wilbraham*, who sent her to *Bath*, mentions in his Letter to the Registrar of our hospital) was put twice into a warm bath, and for a time was the better for it. But her disorder returning, and finding no relief from any measures, she at length petitioned for admission into our charity.

The disease was then of two years standing ; there was a great diminution in the feeling of the whole side, a wasting of the leg and arm, the almost entire loss of action in both, with an immoveable contraction of the fingers into the palm of the hand. The viscera were greatly obstructed ; she was costive, short-breathed, and chloretic.

She was received into the house on the 8th of *January* ; was purged and vomited, and then ordered to drink two small glasses of the water every morning for a fortnight, with a tea spoonful of Elix. Aloes in the first glass.

The vomit and purge were then repeated, and her viscera being now sufficiently cleansed to venture on a larger quantity of the water, she

she increased her dose, and omitted the medicine, which was become unnecessary. About the same time she likewise commenced a course of bathing, and, after a few repetitions of it, had the palsied side pumped while in the bath.

Her disease, which was very obstinate, gave no way till the warm weather came on. She then found a daily amendment, and by degrees her side recovered its sensation; the arm and leg their natural motions, though not their original strength and size; she regained the perfect use of her fingers, and lost all symptoms of a general ill state of health.

We have in this case another instance of the fitness of warm bathing in palsies; though the effects of the common warm bath were here, as in a preceding case, only temporary. This history likewise affords us a farther proof of the increased efficacy of these waters in the warmer months of the year.

When the hemiplegia is the consequence of an apoplexy, its cure is generally extremely difficult; yet we see from Case the first of this division (and others might have been produced) that

that even *here* these waters prove successful, after other expedients have been administered ineffectually.

The probability of the cure in this species of palsy, may, I presume, be estimated by the violence of the apoplectic seizure, and the more or less perfect state of the patient in the Hemiplegia. For it is not unfrequently found that, after the apoplectic fit is over, and the hemiplegia is formed, though there is a return of the senses, yet it is so far from being perfect, that the faculties still continue in some degree impaired. Either the eye-sight, or hearing, or speech, is defective, and sometimes all three; the memory is weakened, or the patient, tho' he knows what answer to make, and to deliver his thoughts with propriety, yet is frustrated in his design by making use of words he did not intend, and which are neither apposite to, nor expressive of, his ideas. In others, a continual oppression or drowsiness is perceived; and some are subject to frequent returns of slight apoplectic impressions.

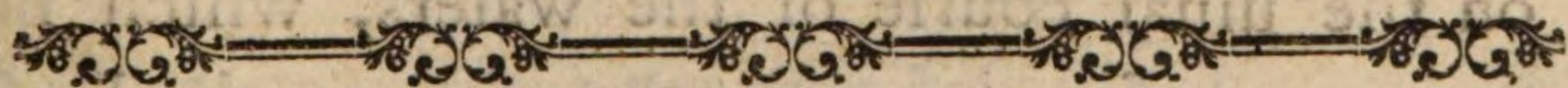
Where these symptoms attend the hemiplegia, it is evident that the brain is still injured;
and

and under these circumstances less advantage is to be expected from the waters. But, where the apoplectic seizure has been slight, where its termination has been perfect (the brain shewing no marks of any remaining injury) and, more especially, where no apoplectic symptom has preceded this palsy, it is most reasonable to hope much benefit from their use. And under these limitations we often find them singularly advantageous in hemiplegias which proceed from causes peculiar to the sex, or from pain, or from suppressed Gouts, or from the stoppage of natural or habitual evacuations, or from the imperfect crisis of acute diseases.

It is generally allowed, that a recovery from the hemiplegia does much depend on the age of the patient; for, when this disease happens in advanced years, Nature is already too much depressed to make any very effectual resistance. And I must also observe, that the length of time in which the patient hath laboured under this complaint (as in every other species of palsy) proportionably retards the cure; for I am persuaded these waters would prove more effectual than they often do, were they applied too as
soon

soon as possible after the attack. But the custom is (I speak with respect to the poor) to try every thing first; and, when every thing has failed, when the disease is grown more obstinate through time, and there is danger of their becoming burthensome to their parishes, then recourse is had to the *Bath*.

I have commonly observed, that, where the waters make in hemiplegias a compleat cure, their good effects become speedily apparent; and that, where they operate more slowly, or the patient finds little alteration after some weeks trial of them, the service they then do is only partial. In these instances the Leg is most usually the only part, as in compleat cures it is the first, that recovers.



A Palsy of the Lower Limbs, from Pain.

SIMON FIELD, of *Wokingham* in *Berkshire*, aged 25, was brought to the hospital, the 30th of *August* 1760, for a palsy of the lower limbs. Upon examination I found him with-

H

out

out the least motion, or sensation, from the middle of the body to the end of the toes.

The first symptom of his disease was a pain, which, without any apparent cause, suddenly fixed in his back between the shoulders, and continued with unremitting violence for near six months ; when it began gradually to abate, and in proportion as it lessened a numbness of the lower limbs came on ; at length the pain entirely ceased, and immediately those parts were deprived of all feeling and motion.

He had now been in this palsied state for a year and a half ; had taken many medicines, had been often blooded, and blistered, but to no effect.

As soon as he could be prepared, he entered on the usual course of the waters, which he continued for three months without the least advantage. His feeling began then to return, and he could, though with extreme difficulty, just move his legs as he sat in a chair.

About the end of *December* he complained of great weakness and dejection of spirits. The
strict

strict adherence to the plan first laid down, and which had been continued regularly for near four months, had sweated him too much. I therefore ordered him to leave off drinking the waters, but to go on with bathing; and to take a decoction of the bark.

In six weeks after this alteration he was able to walk the Ward with crutches; and as his strength and spirits were now greatly recruited, the bark was no longer continued; but the remainder of his cure committed to bathing only.

Towards the conclusion of his recovery, he felt violent burning pains in his feet and ankles after rising from the bath; which symptoms at length ceasing, he went out of the hospital perfectly cured, *May 6, 1761.*

It is to be observed in this man's case, that, though he found no benefit from the waters, after a punctual and regular trial of them for three months, yet he was at length entirely cured by them.

Such perseverance, however necessary it may be, is seldom to be met with in private practice.

tice. Those who resort to this place come generally for a limited time; and, if in the six weeks, or two months, allotted for their stay, they receive not the expected amendment, the waters are blamed, and quitted with contempt. But, had this person, and many others whose histories are here related, been sent to *Bath* under such restrictions in point of time, it is evident they would have returned without the advantages they received.

These truths, which hospital-practice affords, are an ample recompence made by the Poor to the Rich, by whose benevolence Charities of this kind are supported; for by these alone we have obtained the knowledge of facts, the discovery of which is of so much importance to mankind.



A Palsy of the Lower Limbs, after a Lying-in.

ANN GRAHAM, aged 31, from taking cold in her lying-in, which checked the discharge of the Lochia, and from using fomentations to backen the milk, was seized with

with a fever, which terminated in a palsy of the lower limbs.

She was sent to *Bath* from the hospital at *Hyde-Park* Corner, where she had been a patient seven months, and had received a good deal of benefit. For, at the time of her admission into our hospital, *August* 23, 1759, she could walk, though with much difficulty, by the help of crutches. But the palsied parts were still greatly numbed, always covered with a cold clammy dew, were relaxed and flabby, of a livid colour, and the circulation of the blood in their vessels imperfect and torpid. The action of her bowels was so much impaired, that she was obliged to have continual recourse to opening medicines. The catamenia had ceased for eleven months.

As soon as she had recovered from the fatigue of her journey, she was purged with the *Tinctura Sacra*; took the Gum and Aromatic Pills, and drank the waters sparingly.

Sept. 3. She was again purged, and then ordered to bathe twice a week.

Oct. 5. Her paralytic affections continuing much the same, except that after bathing she began to feel severe pains in her loins and hips, and her costiveness being still obstinate, the use of an Electuary composed chiefly of Gum Guaiac. was added to the course of the Waters.

Nov. 16. She could walk without crutches. The menses were returned. Her costiveness was abated. The feeling in her limbs was greatly restored, and the cold clammy sweats had left them. But the pains which were first felt after bathing, (and which usually go off in some hours, or by the next day at farthest) continuing without any remission, about the lower part of the back and Os Sacrum, the parts affected were covered with a mustard-plaister.

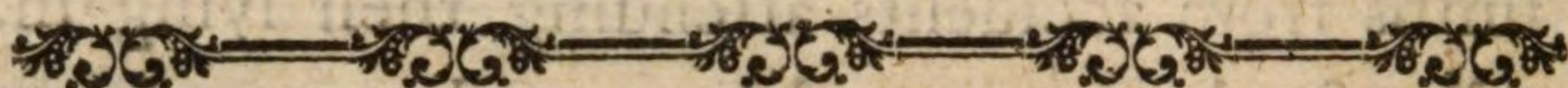
She wore this plaister for some time; but receiving very little benefit from it, it was left off, and she was ordered to have her back pumped. The pains soon began now to give way, and as they decreased the sensation and motion of her limbs grew more and more perfect;

fect ; so that by the 9th of *May*, being greatly recovered, she was dismissed the hospital.

Within the time to which I have confined this Inquiry, nine or ten more instances occur of women who became paralytic in their lower limbs from accidents attending their lying-in. All of whom were either cured, or considerably benefited, except two ; one of which had been thus diseased between seven and eight years, and consequently was more fit for an alms-house than an hospital.

It is much to be wished, that we were always fully informed of every circumstance relating to the patients recommended to us. We can only judge of their fitness for admission, from the particulars contained in the cases sent for our inspection, and we have often too much reason to be surprized at finding their real state so different from what we were made to expect. Such improper objects, indeed, ought to be discharged on the first discovery of their real condition ; but it is not always so easy to exert this necessary resolution, and to withstand the intreaties of a miserable being, petitioning for a trial of the only means, from

which he can hope for an abatement of his disease; and thus the Physician is reduced to the disagreeable alternative of being thought to want humanity, or of acting contrary to the duty of his trust.



A Palsy of the Lower Limbs, from Convulsion Fits.

SAMUEL MANNING, of *Minchin-Hampton*, aged 22, had been always healthy till one day, having over-heated himself, and getting wet immediately afterwards, he was taken in the evening with so severe a pain in his head and back, that he became speechless, and lost his senses.

By bleeding, blisters, and other proper remedies, he was in a few days brought to himself; but the attack left behind a train of nervous spasms, which affected him for a fortnight, and frequently occasioned convulsion fits.

When

When these fits left him, he had, for above a month, periodical returns of a numbness in his legs and thighs ; which were preceded by a strange uneasy sensation in the Os Sacrum, and smart pains in the soles of his feet.

This numbness, which always began about eight in the evening, and continued till four in the morning, at length ceasing, he was again seized with convulsion fits, for four days successively ; in which his strugglings were violent, and while they lasted, he was deprived of his senses.

Two days after these fits had ceased, the same train of nervous spasms returned with which he had been affected in the beginning of his disorder. Their continuance, indeed, was short, but then they left him totally void of all motion in his Lower Limbs ; for which complaint he was sent to our hospital.

About three weeks after his entrance on a regimen of these waters, he fell ill of the small-pox, and was then in so feeble a state, that his recovery was scarcely to be expected. He got, however, through that distemper, which was
of

the fullest distinct sort, but received no benefit as to his palsy in consequence of it.* He returned as soon as was proper to the waters; drank them in moderate doses, and used bathing every third morning. This plan he pursued for two months, and obtained by it a considerable abatement in his paralytic complaints; when, by an act of great imprudence, he not only put a stop to his progress, but endangered his

* I have seen many instances of paralytics having the small-pox, but never knew one of them receive any amendment in consequence of those discharges which attend this disease, or from the alterations it sometimes produces in the constitution.

The fear of conveying other diseases along with the small-pox has been to many persons a prevailing argument against the practice of inoculation. The evidence of facts can alone determine the validity of this important objection. On this account, though foreign indeed to my present purpose, I shall mention the following very singular case, which I found among the medical papers of the late Dr. *Oliver*:—"A person was received into our hospital who was a Leper. He was universally covered with moist running scabs. Soon after admission he was taken ill with the small-pox; they were of the confluent kind, and his life was with difficulty preserved. But it was remarkable that, as the Variolæ came out, the Leprous eruptions retired; when the skin was cleared of the small-pox pustules, the Leprosy returned, unchanged, and in the same degree as before." We have here an instance of the small-pox and the Leprosy making way for each other, continuing distinct, and suffering no change in their respective natures.

That

his life. For, as he was carried to the bath, he was taken with a shivering and a pain in his head; yet, notwithstanding these symptoms of a severe cold, he went into the bath, and staid there much too long. On his return, the pain of the head increased to that degree, as to render him delirious, and a fever succeeded, which for many days subjected him to the most imminent danger.

When the ill effects of this accident were over, a pursuit of his former plan, uninterrupted by any sinister events, effectually restored his limbs

That the Leprous eruptions should retire, as the small-pox came out, is singular; but that the Leprosy should return after the small-pox were over is not so: For all the Leprous patients I have seen, (and many have fallen under my observation in the hospital) have had their Leprosy break out, without any apparent abatement, as soon as the variolous scabs were fallen off, and their strength was recruited by returning to their customary diet.

Were a sufficient number of cases collected, from whence it should appear, (as it certainly does with respect to the Palsy and Leprosy) that diseases, subsisting before the Small-pox, remained after the Variolæ were over, without change or abatement, it might fairly be concluded, that the Seeds of disorders had no union with each other; and could not therefore be communicated together by *Inoculation*: Which would clear up a difficulty, that reason and argument never can remove, and which it would not be allowable to determine by experiment, except upon condemned criminals.

limbs to their native strength and activity ; and, after a residence in the hospital of 127 days, he returned home free from all complaints.

It may be remarked from the enumeration of the symptoms in many of the preceding cases, that those disorders, which are usually termed *Nervous* or *Hysteric*, do frequently accompany the *Palsy* ; and, as it likewise appears from the present, as well as from a foregoing history, (and other examples might have been produced) that they sometimes also give rise to the palsy ; the connection of these diseases, it is presumed, will render a state of such patients not unnecessary, who for nervous and hysteric complaints have been received into our hospital.

And this account I shall the more readily give, as there are physicians of good reputation in the present age, who seem to have no favourable opinion of the *Bath* waters in such disorders ; contrary, indeed, to the judgment of *Sydenham*, by whom they are strongly recommended.* But, waving all claim to authority,

* His words are, “ si ob contumaciam ejus hic affectus ferreis aquis minus cedat, adjuvanda sunt aquae calidae sulphuriae, quales sunt

thority, let us appeal to facts for the decision of their character.

Within the time allotted to the present Inquiry, I find by our register books, that eight patients have been admitted, whose disease was the St. *Vitus's* Dance.—Of these 3 were discharged cured; 3 left the house much better; and 2 received no benefit.

Of others, who laboured under various anomalous affections of the nerves, the total number amounts to 146. Of which 113 were either cured, or greatly benefited; 18 were no better; 5 died; 7 were improper; and 3 were discharged at their own request.

To this general evidence many particular instances might be subjoined of the efficacy of Bath waters in Nervous diseases; but, this not being our immediate purpose, I shall only mention one case, whose singularity will apologize for its publication:

MARY

sunt nostræ *Bathonenses*,—hoc sedulò notandum, quod in earum usu eousque ægro persistendum, donec non tantùm levamen aliquale sentiat, sed, quo minùs symptomata omnia brevi postliminio revertant, donec omnino convalescat.”

Dissertatio Epistolaris de Affectione Hysterica, &c.

MARY FORD, of a sanguine and robust constitution, aged 26, was admitted into the hospital, under my care, *Sept.* 29th, 1762. Her complaint was an involuntary motion of her right arm. It was occasioned by a fright, which first brought on convulsion fits. She was uncertain how long these fits continued, but the first perception she had of returning sense was a most excruciating pain in her stomach: On a sudden this pain vanished, and her right arm was instantaneously flung into an involuntary and perpetual motion.

She had in vain made use of the most likely means to conquer her disorder; which, at the time she gave me this account, had continued without any abatement, for upwards of sixteen months; nine of which she had been a patient in the *Exeter* Infirmary.

This motion of the arm was like the swing of a pendulum; which it resembled also in being regular and incessant. It was besides quick, and so strong, that the hand was at every vibration flung up higher than her head. And what adds much to this singular phænomenon is, that it neither fatigued her, nor abated her strength; yet, if by any means whatever it was stopped,
even

even though by herself, a most severe pain immediately seized her stomach, and convulsion fits were the certain consequence.

Once, at my request, she took a light walking cane in her hand ; which she had no sooner done, but, this motion becoming irregular and unequal, the pain of her stomach returned with extreme violence, and she fell into the strongest convulsion fit I ever saw ; out of which she did not recover, till the arm had, after infinite struggles, returned to its accustomed vibration.

With respect to the general state of her health, this patient was no ways disordered. Her appetite and digestion were good, the catamenia were regular, and the other secretions and evacuations perfect. Her sleep indeed was too short, it seldom lasting longer than three or four hours. During sleep, the motion of her arm ceased ; but the instant she awoke, (and she was always awakened by a pain of the stomach) it returned, and continued, without intermission, for the remainder of the four and twenty hours.

After she had drank the waters, and bathed for about a month, finding no amendment in
her

her complaint, I prescribed for her a medicine composed of Asafœtida and Opium. She began with taking a grain of opium every day, and gradually increased the quantity to four grains a day.

In the use of this remedy, together with bathing, and drinking the waters, she persisted for another month; but without any kind of benefit. On the contrary, those days she went into the bath her spirits and strength were much weakened. She was ordered, therefore, to omit bathing, and to have her arm and the spine of her back pumped every, or every other day, for as long a time as she could bear it. Drinking the waters and her medicine were continued; for I observed the opium neither occasioned drowsiness, relaxation of the solids, nor any defect in the performance of those functions on which health depends.

It was near three weeks after she had commenced this last plan, before any alteration was made in her disorder; when, as she was one day using the pump, the motion of her arm suddenly changed; and, having been perpendicular, became horizontal.

This

This change made it evident, that a different set of muscles were now affected ; on which account it was not unreasonable to suppose, that, by persevering in those measures which had occasioned such an alteration, the entire cure of the disease might in time be effected. Nor did the supposition happen to be wrong ; for this horizontal motion grew gradually less and less, till it entirely ceased, and the arm became obedient to her will. Before she left the hospital, *March* 30th, 1763, her arm was so perfectly restored to its natural motion and strength, that I have seen her carry with it a brass bucket full of water, and assist in washing the ward she belonged to.

Upon her discharge, she went into service ; but came back to us about two months afterwards. She had felt some slight attacks of pain in her stomach, and therefore dreaded the return of the involuntary motion of the arm. But by occasionally taking a few warm aloetic purges, and drinking the waters daily, for about five or six weeks, (neither bathing nor pumping being necessary) her stomach was set to rights, and the return of the spasm of her arm prevented.

prevented. As I have heard nothing of her since this last dismissal, it is to be presumed she has continued free from her complaint.*



A Palsy of the Lower Limbs, after a Fall.

JOHN WATERMAN, aged 34, by falling from a loaded waggon, had the third and fourth vertebræ of his neck distorted, and in a few hours became paralytic in his lower limbs. His stools and urine at first passed off without his knowledge, and a most violent pain fixed in his stomach, accompanied with an inflation of the whole epigastric region. For some time, he was likewise deprived of the use of his arms; but he had regained their action before he was sent to this place.

He was admitted, Nov. 11th, 1760, six months after his accident. The vertebræ were still

* I have lately been informed that she has had no return of her disorder.—A similar case in private practice has since fallen under my care. I found vomits particularly useful by cleansing the stomach of great loads of phlegm. The patient left Bath perfectly well. Her stay here was too short. The disease returned. She came again, and was cured again.

still displaced ; he felt severe pains in his neck ; his lower limbs were incapable of motion ; his belly was distended to a vast size, was sore to the touch, and if struck on sounded like a drum ; his bowels were now grown costive, and it was with the utmost difficulty he could part with his urine.

Bathing was first used to abate the pain and tension which were occasioned by the distortion of the vertebræ of the neck ; but as it added much to his uneasiness, by increasing the distention of the abdomen, he was at length obliged to desist. Pumping on his neck was therefore substituted, by which he found an almost immediate relief. For, as the displaced vertebræ slid gradually back again into their natural situation, the perfect use and feeling of his lower limbs returned. And, wind in prodigious quantities being discharged from the stomach, the swelling of his belly subsided ; and, in proportion to its decrease, the action of the bladder, and the peristaltic motion of the bowels were restored.

Without entering into an anatomical description of the descent of the nerves from the brain,

and their distribution among the viscera, it will be sufficient to observe, that those nerves which are destined to actuate the stomach and bowels were, by this distortion of the vertebræ of the neck, impeded in their operations; and consequently, that these organs became in some degree paralytic.

Under such circumstances neither digestion, nor the expulsion of the fæces, could be duly performed.

In the former case, much wind would be generated from the defective concoction of the food; flatulency being generally in proportion to the weakness of digestion: In the latter, much air would separate from the obstructed excrements.

Upon these principles, the enormous distention of the belly, in this man's case, may readily be accounted for; and what confirms the explanation is, the subsiding of the swelling upon the started vertebræ's being replaced by the use of the pump.

Hence we see why internal medicines (for many had been given him before he came into
our

our hospital) had no effect in reducing this distention; it not having been occasioned by any defect in the viscera themselves, but from a want of their being duly actuated by those nerves, to whose influence they are indebted for their powers.

Two reasons have induced me to make these remarks.

The first is, that, could we always discover the seat of the cause which produces a palsy, and would the situation of the part originally affected allow of the immediate and direct application of the remedies, such diseases would be less difficult to cure.*

The second (which may be of real advantage) is, that in the treatment of paralytic affections, it should be a rule to have the spine of the back pumped, as well as the particular part which appears to be more immediately diseased.† This observation, however, does not
I 3 seem

* Maxime autem curandum, ut ad sedem causæ detectam omnia remedia, si possibile, applicentur. *Boer. Aph. 1070.*

† “ Σκέλη κὲ χεῖρας εἰκὴ κὲ μάρτην οἱ πολλοὶ τῶν ἰατρῶν ἀνατρέχουσι φαρμάκοις θερμαίνουσι, ἀμελήσαντες τῶ τόπῳ καὶ ὃν ὁ νωπαῖος ἢ τι τῶν ἀπ’ αὐτοῦ βλάπτεται νεύρων,” says *Galen. De locis affect. Lib. 4. Cap. 7.*
And

seem to extend so much to that species of palsy which is produced by the cholic, as to those which are derived from most other causes.



A Palsy of the Lower Limbs, from a Distortion of the vertebræ of the Back, occasioned by Pain.

JOHN LACY, of Briton, Gloucestershire, aged 26, was subject for many years, at times, to severe pains in his back; which at length occasioned six of the dorsal vertebræ to slip out of their place.

The distortion of these bones was followed by the entire loss of motion in his lower limbs, together with such a defect of sensation in these parts, that, unless his flesh was squeezed with a force which in a sound state would have been very

And in another place: “ οὐκετ' ἐνοχλήσεις τοῖς παραλελυμένοις κώλοις αἴφεις τὴν ραχιν, ἀλλ' ἐπ' ἐκείτην ἀφικόμενος ἐκθεραπεύσεις τὸ πεπονθός.”—

Ibid. Lib. 1. Cap. 6. The truth of which he confirms by the case of *Pausanius Syrus*, who, by a fall out of a chariot on his back, became paralytic in one of his hands; which palsy *Galen* cured by the application of those very remedies to the spine of the back, which had been before ineffectually applied to the hand itself.

very painful, he had not the least feeling in it. The diseased limbs were cold to the touch, of a livid hue, always covered with a clammy sweat, and their blood vessels preternaturally distended. The pains in his back still raged by fits with extreme violence.

In this miserable state he had continued for above a twelvemonth, before he sought relief from these springs.

When he had bathed a few weeks, his back was pumped; and he was ordered, upon coming out of the bath, to be suspended in a swing, as long as he could bear it; the started vertebræ were then anointed with an emollient liniment, and covered with a soap plaister.

Such was the plan laid down for his recovery (for I gave him no medicines internally, except such as were necessary to keep his body open) and which finally proved successful; though not till he had pursued it near 13 months.

For the first eight months he perceived no other alteration, than a gradual abatement of his pain; at the end of this period, he could move his toes; it was two months after this

before he could walk with crutches; and a continuation of the same measures was requisite for near three months longer, to restore the entire feeling, and perfect use of his limbs.

In this case the vertebræ did not get back again into their places, but the arch they formed grew flatter and broader; by which means, the angles that these made with the others that remained in their original situation became less acute, and thus the pressure was removed from the spinal marrow: In consequence of which, though the patient was relieved from his palsy, yet, an unalterable deformity of the spine remained.

Various are the cases of this kind which come into our hospital. In general all such patients have from time to time very severe pains in the neighbourhood of the started vertebræ; and, though the lower limbs should be insensible to the touch, at least in a great degree, yet they are subject to violent spasms, which make them suddenly fly out, and extend their muscles so excessively as to produce the most severe tortures. In some patients, there is a total inability of evacuating either the urine or stools, without

without having continual recourse to the catheter and clysters; in others, there is a perpetual and involuntary discharge of both.

Happy is it for such sufferers to be informed, that these waters generally succeed in this kind of palsy. I have known the worst affected in this species perfectly cured, (of which the present case is an instance) or at least the symptoms so greatly relieved as to render life comfortable, when compared with the state of misery they had before undergone. But the disease most commonly requires a long course of bathing and pumping before the desired effect can be obtained: Let such, therefore, who labour under this palsy, not be discouraged, if their recovery does not keep pace with their wishes.

The best method of treating this complaint has been found to be the following:

When the patient has bathed ten or twelve times to supple and relax the parts affected, he should then, after every bathing, be suspended in a swing; sometimes by the neck, sometimes by the feet. After this extension of the spine, the vertebræ must be anointed with an emollient

lient and moderately warm liniment, and the patient conveyed into bed. It is also useful to cover the displaced bones with some soft relaxing plaister, which is to be taken off when the patient goes into the bath.

The operation of the swing is, commonly, at first extremely painful. The patient must, therefore, be put into it in the most careful manner, and continue there but a very short time. By repetition it grows less painful; which, together with the benefit he feels from the operation, will encourage him to bear and prolong it; and he will find, as the disease abates, the pain proportionably to decrease.

I must add, that the back should be pumped while the patient is in the bath, before he is put into the swing; and, in very obstinate cases, on the intermediate days also, when he does not bathe; but I would not then, generally, advise the suspension in the swing. Pumping, however, is not too hastily to be begun; and, great care is to be taken, that it does not inflame the diseased parts.

By these measures, the started vertebræ will either slip back into their places, or the adjoining

ing ones will give way ; and, by enlarging the curve, lessen the angles which are made by the first displaced bones with their superior and inferior neighbours.

In either case the palsy is cured ; but in the latter a crookedness of the spine must ever remain.



*A Dead Palsy of the Hand and Arm, from
a Fever.*

ANN WEST, of Glastonbury, aged 24, was recommended to this charity for a pain in her right arm and hand.

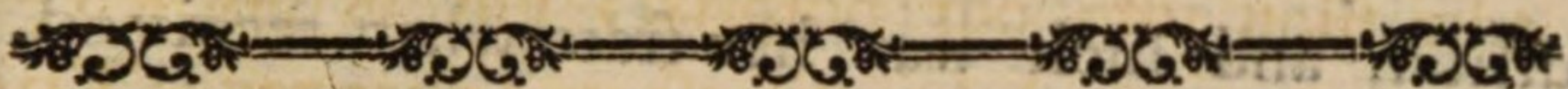
She had been ill of a fever, which after six weeks continuance terminated in a critical deposit of the febrile matter on these parts. For immediately as the symptoms of the fever declined, she felt an acute pain between her forefinger and thumb ; from whence in a few hours it extended to the wrist, and in about a week reached as high as the elbow.

Such

Such was the case when she petitioned for admission into our hospital; but before a vacancy happened, her disease was changed. The pain had entirely left her, and in its place a *dead palsy* possessed the arm and hand; which absolutely destroyed all sensation and motion from the elbow to the ends of the fingers.

As the patient was in all other respects well, and the disease appeared to be merely a local one, it was thought unnecessary to have recourse to any other measure than that of pumping the dead limb; by which both its feeling and action were, in 131 days, perfectly regained.

This case is an exception to the general rule before mentioned, of pumping the spine of the back, as well as the palsied limb; though it seldom happens but that both are necessary.



*A Dead Palsy of the Leg and Thigh, from a
Fever.*

HANNAH LOSCOMB, of *Huntspill, Somersetshire*, of a florid complexion, strong and healthy, and of about 40 years of age, by sitting in the open air, after being much heated, was seized with a fever, attended with excessive pain in her hips, thighs, legs, and feet.

By the use of sudorifics, the pain abated in the left leg and thigh, but became more violently fixed in the other side. The whole right limb began then to swell, and increased to a prodigious size, without the skin's being discoloured, or the pain abated. In which state it continued for near a month; when, upon the pain's growing less, and the swelling subsiding, the parts affected became more and more numbed, and finally were dispossessed of all feeling and motion.

She

She passed many months in this helpless condition, and such was her state when received into our hospital.

Having first taken such medicines as were necessary to prepare her for the use of the waters, she drank them daily, bathed thrice a week, had the limbs pumped while in the bath, and used the dry pump the days she did not bathe.

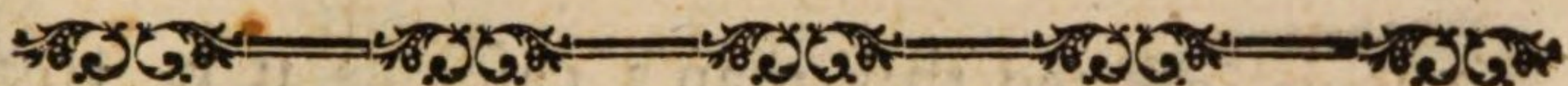
When warm immersion had been five or six times repeated, she complained of a return of pain in the palsied parts; which was particularly severe after every bathing. But, as this pain was judged to be an indication of returning health, she was ordered to persist.

At the expiration of about six weeks the deadness of her leg and thigh was removed, and she then felt no more pain from the bath; but by persevering in its use, together with the assistance of pumping, she had the strength and motion of the diseased limbs entirely restored.

Pains coming on, after bathing, in palsied limbs, I have generally found to be a pretty sure sign of their recovery.

From

From these *two cases*, as likewise from *case the fifth* among the hemiplegias, and *case the first* among palsies of the Lower Limbs, it appears how successful our waters are in palsies, where not only motion, but sensation also, is destroyed.



* *A Dead Palsy of the Limbs, without Loss of Motion.*

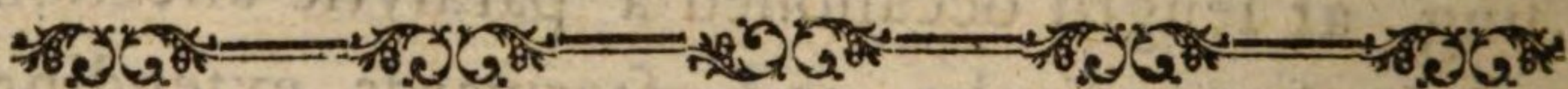
JOHN WESTLAKE, of *Winchester*, aged 38, attributed to his lying on damp straw a stiffness in his knees, which rendered him incapable of walking. This complaint increasing, at length occasioned a paralytic affection of the lower limbs, and afterwards extending itself to the arms and hands, it deprived all these parts of their sense of feeling; though it left them, in some degree, possessed of their powers of motion.

The parts more immediately affected in this manner were the hands and feet; which, notwithstanding their being absolutely dead to the touch, he could move readily enough; though
their

their actions were aukward and too weak to be of much assistance to him.

He followed the customary practice of the hospital as to bathing and drinking, for five months; and was *minuted* in our register on his discharge, *Much better*.

I have inserted this man's case, as it is the only one I ever knew of that species of palsy, in which the diseased parts retain their *motion*, after being deprived of their sensation. Though, as an instance of this uncommon affection, it was far from being so completely satisfactory, as the two facts mentioned in the Memoirs of the Royal Academy, for the year 1743.



A Palsy of the Hands, from the Cyder-Cholic.

WILLIAM BISHOP, of *Dunster* in *Somersetshire*, of a spare dry habit of body, was affected with an excruciating pain in his stomach, which soon extending to the bowels, brought on a total obstruction that continued for 10 days.

These

These complaints were occasioned by his having drank freely of cyder.

A passage being at length procured, the pains of his stomach and bowels in some degree abated; whereupon a weakness seized his wrists, and gradually deprived him of the use of both hands; the backs of which were covered with large hard tumors, that for a time were extremely painful.

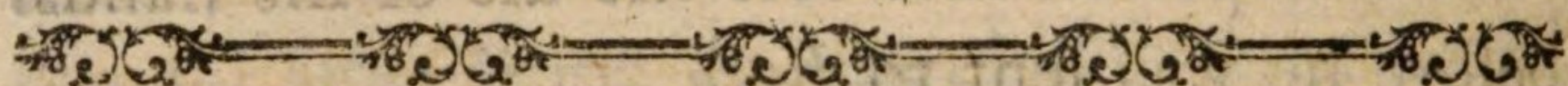
It was a year and nine months, from the time this person first lost the use of his hands, before he was sent to *Bath*.

The hands fell pendulous from the wrists, the power of raising them being gone: The fingers were contracted into the palms of the hands, and could not be extended. Except the affection of these parts, he was in other respects well; his bowels having long been free from obstruction

After a few doses of physic, he drank the waters, and went into the bath. When he had bathed about a fortnight, he was ordered to have his hands pumped every day, and by

these means he, in a very few weeks, was entirely cured.

'Tis to be observed, that five or six other persons, belonging to the same place, were affected, about the same time and from the like cause, in their stomach and bowels, which terminated in a palsy of their limbs; and that they were all, together with this patient, discharged from the *Bristol* Infirmary without having received any benefit; but were afterwards perfectly recovered by these waters.



*A Palsy of the Arms and Hands, from the
Cyder-Cholic.*

JOHN HOLMAN, by drinking too freely of cyder, when heated with labour, was attacked with a cholic, which lasted five weeks, and was accompanied with a constipation of the bowels, fever and delirium. As soon as his costiveness was removed, the fever and delirium left him, and the pains in his bowels were much abated. On the remission of these pains, his knees began to swell; but these swellings

lings soon subsiding, his hands became paralytic, and then the bowels grew perfectly easy.

This palsy of the hands did not continue above a month ; the disease gradually abating of itself, till it entirely left him.

The next year, from the like indiscretion, his disorder returned, and was attended with the same symptoms ; which having lasted longer than on the first attack, in the end, totally destroyed the action of his arms and hands. In this condition, near seven months after his relapse, he came to the hospital. He drank the waters, bathed, and was pumped, and in a couple of months regained the perfect action and strength of his arm ; but the muscles of the fingers not advancing equally in their recovery with those of the arms, blisters were applied to the wrists ; by which these parts were also restored to their natural powers.

He was admitted a patient the 9th of *February*, 1760, and was discharged the 28th of *May*.

* *A Palsy of the Arms and Hands, from the
Cyder-Cholic.*

NICHOLAS NEALE was taken with a cholic, attended with a diarrhea, upon drinking some new cyder; which complaints continued for fourteen weeks. He then found his voice begin to falter, and for some days could not speak to be understood. After this, his speech returned; and then his arms and hands became paralytic.

These limbs hung loose and helpless from the trunk of the body, and were affected with severe pains continually running from the ends of his fingers to the points of his shoulders.

In this state he was received into the hospital, the 1st of *April*, 1759; and by the customary methods was perfectly cured by the 18th of *July*.

I have been induced to mention this case from a circumstance attending it, which is contrary to the usual progress of the disease: For,
though

though a purging came on at the beginning of the seizure, and continued till the cholic ceased, yet a palsy first seized the organs of voice, and then shifting to the arms and hands entirely took away their use.

The cholic which gives rise to this species of palsy, was not unknown to the ancients. It is twice mentioned in a manner sufficiently descriptive by *Paulus Ægineta*.* Of late years it has engaged the attention of some of our best medical writers. It will therefore be sufficient to observe, that in consequence of a most obstinate costiveness attended with exquisite pain in the bowels, upon the constipation being removed and the pain diminished, the patient loses the use of his limbs. The arms and hands are the parts most commonly seized with this palsy; though I have known many instances where the lower limbs have been equally affected. Rheumatic pains sometimes attack the limbs before they become paralytic, and sometimes continue after the palsy is formed; in the latter case, I have generally found the disease less difficult to be removed.

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Whether

* Lib. 3. Cap. 18 and 43. Edit. apud Med. Artis Principes.

Whether this paralytic affection is owing to a translation of the morbid matter from the bowels, to those nerves which actuate the limbs; or whether it is occasioned by that influence which some parts of our frame, when diseased, have on others, though situated at a considerable distance from them, is a point that remains undecided. It is certain, however, that anatomy has not hitherto discovered any communication between the nerves of the abdominal viscera and those of the arms; and yet this palsy of the arms (as *Van Swieten* assures us) has been cured by medicines internally given, and applied externally to the abdomen only.*

The fumes of minerals, and the imprudent use of new cyder, are reckoned among the causes of this cholic.

In a very ingenious pamphlet lately published by Dr. *Baker*, † the *Devonshire* cholic is attributed

* Probe memini me plures sanasse nullo remedio applicato ipsis partibus paralyticis ad dissipandum morbosam materiam, sed solis remediis internis, una cum frictionibus, unguentis aromaticis, emplastris similibus, Abdomini tantum adhibitis.

B. Van Swieten Com. Lib. 3. p. 358.

† And since republished with additions among the Medical Transactions.

buted to lead, dissolved by the juice of the apples in manufacturing the cyder.

Lead we know is remarkably productive of this complaint. The sugar of lead has been recommended in some cases as medicinal, and perhaps, when judiciously used, may have proved so ; but, when either given internally, or externally* applied, without proper caution, is found to bring on the disease. The same effect is produced by correcting acid wines† with sugar of lead : and a similar instance, not long since, fell under my own knowledge, of six persons who became at the same time paralytic by drinking cyder, brought to them while at harvest work in a new earthen pitcher, whose inside was glazed ; which glazing is made chiefly of lead, and was undoubtedly dissolved by the cyder, as appeared not only from those unhappy

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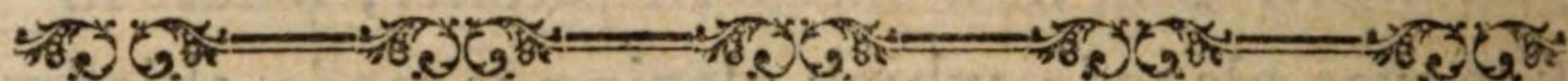
effects

* I was informed by a surgeon of great eminence, that a palsy of both legs and arms had been brought on by an attempt to destroy venereal verucae by rubbing them with Saccharum Saturni.

† Rhenish wines, however acid, never produce this disease ; they give rise to it only when sweetened with lead. In *Germany* this practice is justly deemed a capital offence. I fear it is too frequent a custom in this kingdom, when cyder is grown so acid as to be unfit for sale, to hang a large ball of lead in the cask to sweeten it.

effects which drinking it produced, but also from its having given (as these persons informed me) that astringent sweetish taste to the liquor by which solutions of this mineral are peculiarly distinguished.

But whatever be the cause whence cyder derives this deleterious quality, this however is certain, that all such paralytics come to our hospital from the counties of *Devon*, *Somerset*, *Gloucester*, and *Cornwal*. It is a very remarkable fact, that during the 13 years to which this Inquiry extends, there has been only one such patient sent us from *Herefordshire*, and not one from *Worcestershire*.



A Palsy of the Hands, from the Bilious Cholic.

MARGARET HOBBS, of *Barnstaple*, in *Devon*, 31 years of age, had possessed a good state of health till within a twelvemonth before she was recommended to this charity; when she was taken with violent pains in the region of the stomach, continual vomitings, and
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an obstinate costiveness. The vomitings and costiveness being with much difficulty removed, the pains left her stomach and settled in her lower limbs, of whose use she was deprived for two months. They then shifted to her shoulders, and the lower limbs regained their functions. From the shoulders the pains soon descended to the wrists, and her hands were rendered paralytic. Her fingers were so strongly contracted she could not move them, and large hard swellings rose on the backs of her hands. Her bowels were costive, and the catamenia were obstructed.

On account of these two last symptoms, the use of an opening electuary, and the occasional assistance of deobstruent medicines, became necessary with the customary regimen of the waters ; by which all her complaints were cured, except the tumors on the backs of her hands. These, not giving way to the pump, were removed by the application of blisters, and her recovery was perfected in 151 days.

Pumping will generally dissolve, and, by the perspiration it occasions in the part, discharge these swellings ; but sometimes it will only sc-

ten

ten them ; in which case we find it necessary to cover the tumors with blisters, or plaisters, or cataplasms made of mustard-feed.

The use of Bath waters in diseases of the Liver may, I think, be comprised under the following heads :

They increase the action of the Bile.

They prevent its visciditv ; and by uniting its several component principles, restore this fluid to a perfect and natural state.

Whether internally, or externally used, they abate spasmodic strictures of the biliary ducts.

In consequence of these properties, joined to their well-known effects on the stomach and bowels, they become extensively useful in most disorders of the Liver and Primæ Viæ ; as in jaundices when too obstinate to be removed by the common methods of cure ; in preventing the formation of biliary concretions, or gall-stones ; in bilious cholics ; loss of appetite ; indigestion ; and all those various complaints which, both among the rich and poor, are
the

the effects of intemperance and excess. But it is to be observed, that these waters should be carefully abstained from, if there is the least degree of inflammation attending any of these complaints.



A Palsy of the Arms and Legs, from the West-India Cholic.

ALLEN LANE, of *Portbury* in *Somersetshire*, mariner, aged 19, was in the year 1749, attacked in the *West-Indias* with the dry belly-ach, which brought on a fever, convulsions, and loss of senses. These complaints continued for some time, and, upon their quitting him, he was entirely deprived of the use of all his limbs. It was near a twelvemonth after this paralytic seizure, before he came to *England*, and was, at my recommendation, admitted into the hospital, under the care of the late Dr. *Sommers*.

His arms hung useless, like flails, from his body; his fingers were drawn into the palms of his hands, the backs of which were covered
with

with large hard swellings. His legs were contracted close to his buttocks, and so fixt there that no external force could displace them. In consequence of this contraction, which made it impossible for him to put his feet to the ground, he rested on his knees; and when he was to remove from one place to another, it was done by crawling on them and his elbows. The muscles of the whole body were greatly emaciated, particularly those of the arms and legs. His bowels were excessively costive and frequently tormented with pains; he was often sick at his stomach, and had little or no appetite.

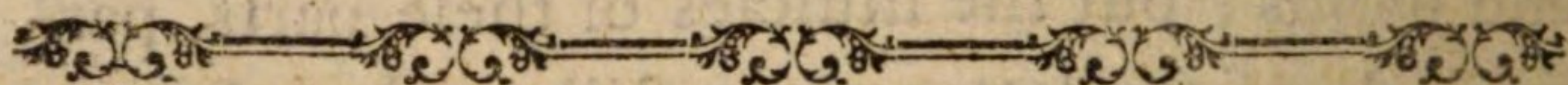
The first intention in this case was to get the stomach and bowels into a natural state, by improving the appetite and digestion, and procuring a free passage for the excrements. These points were at length effected by a proper regimen of diet, the occasional use of mild aperient medicines, and the waters drank in small quantities. He now became able to venture on bathing, and to make use of the pump; which measures he continued till his stay in the hospital was no longer necessary.

It may easily be imagined, that it required a long use of these waters before a disease of such inveteracy could be expected to give way to them ; but it at last yielded, in a great measure to their powers, though not till he had resided here 622 days.

He was discharged the 20th of *May*, 1752, minuted in our Register, *Much better*. For his general health was in all respects restored. The contraction of his legs was entirely removed ; their muscles were grown fleshy and full, and the compleat action of the lower limbs was regained. He had also the use of his arms and hands ; but the muscles of these parts, particularly of the latter, were still weak and emaciated. And it is most probable they never recovered their natural strength and size ; as I do not remember more than one or two instances, where a compleat atrophy had once possessed the muscles of the hands, especially those which form the ball of the thumb, that the parts ever recovered their natural fulness and strength.

We have here another remarkable instance of what Bath waters can do, in the most unpromising

promising cases, by a steady perseverance in their use. Such long trials, which are not unfrequent in our hospital, must lessen the number of patients discharged; yet as we find by repeated experience, that many chronical cases require a long use of the waters before we perceive any great alteration for the better, and yet at last are cured; we think it our duty to persevere, while we find there is the least probability of success. By this conduct we have often the satisfaction of doing the most essential services, which a more hasty procedure would necessarily have prevented.



Palsies from Paint.

THOMAS WOODDEN, painter of earthen ware, was twice admitted into St. *Thomas's* Hospital, for a cholic and palsy, which were the effects of his occupation, and was both times much relieved; but still so great a weakness remained in his wrists, as to render him incapable of using his hands; on which account he was sent to our hospital, where he was perfectly recovered in 140 days.

We

We have a great number of instances of this kind on our books ; but this case I have particularly selected, as it shews, that a very small quantity of that noxious mineral, Lead, (for very little, I am informed, is used in the business which this man followed) is capable of producing the most pernicious effects. Happy would it be, if some other pigment could be discovered, which might supply its place : For even the very effluvia which arise from newly painted houses have sometimes proved as hurtful to the inhabitants, as mixing the colours and laying them on too commonly prove to the painters themselves.

'The following instance of a patient recommended to us, by a gentleman of great eminence in the profession, is a proof of this observation. I shall take the liberty of copying his letter :

“ SAMUEL BUTTS, aged 41, of *St. George's, Hanover-Square*, of a thin habit of body, and pale complexion, was seized with cholic pains in his bowels, attended with a little quickness of the pulse and costiveness, about the 20th of *August*, 1753. Proper means were used to
relieve

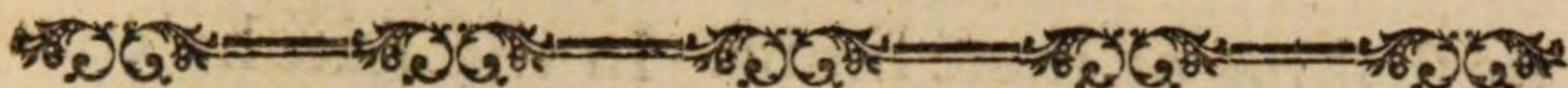
relieve him by the advice of a very experienced physician. Notwithstanding all the assistance that could be given him, his pains continued about three weeks, sometimes very violent, at others more gentle; but he was never, during that period, quite free from them. As they began to abate, he gradually had a weakness of his legs and arms come on; which has increased so much in his arms and wrists as to disable him from feeding or dressing himself, and has reduced him to a very helpless condition. During the whole time of the complaint, stools have with great difficulty been procured. *He lived in a house while it was new painted, when taken ill.*

THOMAS GRAHAM.

PALL-MALL, 29th Sept. 1753.

This patient, whose complaints were exactly similar to those which painters themselves so often suffer, came into our hospital October the 15th, 1753, and was discharged cured the May following.

A Palsy



A Palsy of the Hands, from Glass-Grinding.

EDWARD ERRIDGE, of *Willington* in *Sussex*, aged 29, by trade an optic-glass maker, which business he had followed for near twenty years without any inconvenience, was one day suddenly taken, as he was grinding glass, with a most violent spasmodic pain in his stomach, and continual vomitings. To which ensued so costive a state of body, that he was frequently for a fortnight together without any evacuation; during which time the pains he felt in his belly were intolerable. For these complaints, together with wandering pains that more particularly affected his arms, he was admitted into *Guy's* hospital; where he found, with respect to the disorder in his bowels, a good deal of benefit, and was advised by his physician to repair to *Bath*, for the completion of his cure. But not following this advice, he continued for some months in a miserable condition, from the pains which had now fixed together in his arms; but which at length gradually wore away, and were succeeded by a paraly-

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tic shaking of these limbs. In this state he continued for five months ; when the tremblings ceased, and he lost the use of both his hands.

He came to our hospital *March* the 14th, 1752 ; and was discharged in the *August* following, *much better*. He returned to us again in *December*, pursued the same course of bathing and pumping till the 5th of *April*, when he obtained a perfect cure.

I find by Dr. *Oliver's* papers he was informed by a patient, who was paralytic in his arms from the same cause as the person whose history is above related, that, from the wheel used in grinding glass, which is turned by a rapid water-course, there is frequently emitted a blue flame which smells very sulphureous, and is excessively poisonous ; that many who follow this business grow consumptive ; some lose their senses ; but the generality are subject to cholics, which usually terminate in palsies of the hands. The person, who gave the doctor this information, laboured under the latter complaint ; of which he was cured by these waters in 251 days ; but relapsed by returning to his business, and upon a re-admission into the hospital received no benefit.

Painters,

Painters, refiners, gilders, and all who are employed in digging ore, or in the separation of metals from it,* are liable to cholics which end in palsies. The symptoms are much the same with those which proceed from cyder, and the Bath waters are equally a remedy, by whichever of these causes the disease is produced; with this difference, however, that palsies from mineral effluvia require the longest use of these waters to effect their cure.

I shall here conclude the history of these cases; the number of which might have been much enlarged,† were it not presumed that those I have given, with the assistance of the General Table of Paralytics, will fully answer the purpose of this Inquiry.

It is apparent from these cases, that the patients usually recommended to our hospital labour

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* Most probably from some portion of lead that is mixed with them.

† I rather think the medical reader will wish I had troubled him with fewer: but as this Tract may fall into the hands of those who are afflicted with this disease, it must be a consolation to such, should they find that palsies similar to their own (as arising from like causes) were relieved by these waters; which consideration will, I hope, be deemed a sufficient apology for my having given so large a number of cases.

bour under palsies which have resisted the powers of medicine, and whose original obstinacy has, of course, been augmented by time; yet the Table informs us, that out of 969 paralytics, in situations so unpromising, 813 were benefited.

It cannot have escaped the reader's notice, that BATHING in these waters makes an essential part of the hospital practice.

We bathe all our paralytics, where no particular circumstances forbid. When a patient is sent to us, whose limbs from a long continuance of the disease are totally relaxed, warm immersion in such a state would be manifestly improper; and he is, therefore, obliged to refrain till by drinking the waters, or, if necessary, by the aid of medicine, he acquires a sufficient degree of strength to venture on its use. Where no such objections occur, he enters on this regimen after a short preparation. If the bath weakens, as it sometimes does, he intermits it, and in the mean time has his limbs pumped. Some are able both to bathe and pump at the same time, or else to use each alternately; while others stand in need of pump-
ing

ing alone; and thus the external application of these waters is used in all such complaints, though varied according to the particular nature of the case and the constitution of the patient.

But it is said by Dr. *Mead*, “that warm bathing promotes a return of the apoplexy.”* But why ascribe this *return* to the use of warm bathing? Since this disaster happens to those who have never used the warm bath. For relapses of this sort are common, and are owing to that natural affinity which unhappily subsists between these two diseases.

The evidence which the Table of Paralytics affords will, however, best determine this matter; and to give the objection to warm bathing all due weight, we shall consider it both as a general prohibition to this practice in all palsies, and as a particular one in the Hemiplegia only.

In the first instance it will appear, that out of 969, 43 have died; which in round numbers is as 1 to 22.

In

* Ipse quidem novi nonnullos, qui, cum vana medicorum spe delusi ad thermas nostras *Bathonienses* profecti essent, ex aqua calida egressi, mox iterum apoplexia correpti sunt, ac perierunt. *Mon. & Præcep. Med.*

In the second we find, that out of 257, 12 have died ; which is in the proportion of 1 to 21.*

Both calculations turn out nearly the same, and either of them is sufficient to shew the weakness of the objection. For supposing all those persons to have died from a relapse into the apoplexy, (which is granting more than is true, as some of them were carried off by the small-pox) yet, these very few instances of ill success, among such a number of patients, whose cases were so hazardous, are proofs rather of a preventive, than an accelerating power in these waters, as to the point in question. At least, this return will be considered, by those best qualified to judge, as an event very natural in itself, and too apt to happen to those who have never used warm bathing.

These considerations weigh still more strongly on the side of warm bathing in the Hemiplegia, to

* In these calculations, the patients ranked under the four last divisions in the table of paralytics are not considered ; they being no ways concerned in the question.

to which the caution is peculiarly directed. For, as *Bellini* observes,* “they who are paralytic from the apoplexy, with difficulty, and very seldom recover : on the contrary, they are more apt to relapse into the apoplexy.” In truth, this kind of Hemiplegia is a mere crisis, or effect, of the apoplexy : † Hence we see their alarming connection, and hence follows the too frequent and fatal termination of the former, *in the disease from whence it arose.*

It is natural for Men to be governed in their judgments by what falls under their own observation : Hence it is, that we are too often tempted to draw general conclusions from the good, or ill success, of a few particular Cases. But it is on full and repeated experience, not on partial or casual, that Aphorisms in the art of medicine are to be drawn, or can be well founded ; and therefore, as the evidences here produced are both numerous and decisive, I shall

* Non nisi difficile & raro contingit ut paralytici ex apoplexia evadunt, imo e converso facilius tales paralytici in apoplexiam recident. *Bellini de morbis Capitis.*

† Definit ut plurimum, nisi mors intercedat, apoplexia in nervorum resolutionem, quæ morbi est solutio.

Mead Mon. & Præcep. Med.

shall not hesitate to affirm, whatever authority there may be to the contrary, *that Bathing in these Waters is useful in Palsies.*

Should the curious Reader now want to know, after what manner the Bath waters act in the cure of paralytic diseases, his first solicitude should be employed in seeking, how animal motion and sensation arise from the brain and nerves. That these organs are necessary to the performance of those animal functions is well known; but how they perform them remains yet, and is likely to remain, an inexplicable secret. While Nature, therefore, so industriously conceals from us the *manner* of her operations, it should teach us to confine our studies to the acquirement of that useful knowledge, which is the fruit of a patient attention to their *consequences* and *effects*; instead of pursuing speculations and forming systems, which, when well founded, have proved of little use in the art of healing; and when ill founded, an eternal hindrance to our progress in it.

F I N I S.

T R A C T

T H E T H I R D,

C O N T A I N I N G

C A S E S

O F

Patients admitted into the Hospital
at B A T H,

Under the Care of the late Dr. OLIVER,

W I T H S O M E

Additional CASES and NOTES,

By the E D I T O R.

T R A C T

THE THIRD

CONTAINING

CASES

of the late Dr. O'Sullivan
admitted into the Hospital

at BATH

WITH
Additional Cases and Notes

By the EDITOR

INTRODUCTION.

THE consideration of the miseries which numbers of poor sick creatures languished under, in different parts of this kingdom, from not being able to obtain the assistance of the medicinal waters of this place, induced many persons of humanity to think of erecting an Infirmary at Bath for the reception of such objects ; in which they might be supplied with food, phyfic, and advice, while they were using these waters for the relief of their several maladies.

This scheme, however, did not at first meet with the encouragement it deserved. It lay dormant a considerable time, till in the year 1738 it was revived and carried into execution by Mr. Allen, with that zeal and generosity which attended all his other various and extensive charities.

Doctor Oliver was among the foremost to promote so good a design, and in his frequent conferences, while it was in agitation, with his

friend Mr. Allen, he represented to him (as his profession naturally led to the observation) “That one circumstance of the great utility of such an hospital, would be,—its affording constant opportunities to the physicians and surgeons, who should be intrusted with the care of it, of improving themselves in the knowledge of the right use of these medicinal waters; and that by their publishing from time to time their experimental observations, the public might thereby be considerably benefited.”

This hint, which, with the Doctor’s consent, was inserted in the printed proposals for establishing the Hospital, was with many, perhaps, a motive for contributing to the undertaking.

It therefore in some degree became, from Doctor Oliver in particular, a kind of debt to the public: And it has been asked, why this promise was so long delayed, and why it was, indeed, never perfectly performed?

To the latter part of this question,—why this promise was never perfectly performed?—a sufficient answer but too readily presents itself; namely, the death of that experienced physician.

To

To the former part,—why it was so long delayed?—the following apology will find the readier admision with those who are the most competent judges of such an undertaking; as it is the language of true genius, which, seldom being able to please itself, too hastily concludes it can please no one else.

“The only excuse I can make, (says the Doctor) is,—that to perform it *well* is a much more difficult task than persons unacquainted with such matters can possibly imagine;—that a too tender regard, perhaps, for my own reputation, may have kept me in awe, and made me fearful of running the risk of public censure, which is more inclined to mark the deficiencies, than candidly to accept the good intentions of a writer.

“These motives would still have kept me silent, if my detestation of the least appearance of breach of public faith had not prevailed over them. However incapable, therefore, I may be of doing all I *wish*, I can no longer hold myself excusable for not doing all I *can*, to satisfy those who think they have a right to my endeavours.”

This passage is extracted from a dedication to Mr. Allen, which the Doctor intended to

prefix to his work ; which, though it never was compleated, yet some of the Cases of the Hospital Patients were published in his lifetime, and others were prepared for the press. For as ill health, and a variety of other concerns, hindered him from giving this work to the public at once, he fell on the more easy plan of publishing it by parts ; which, had he lived, would in time have amounted to a whole.

Of these cases the following sheets are chiefly composed. To which are added some few cases and notes of my own.*

So much I have thought necessary to premise, as well from respect to the memory of a friend, as to prevent the reader from hoping to find *here* a compleat collection of all such cases which our Hospital admits.

Had Dr. Oliver lived, the public expectation would have been fully gratified.

* The Cases and Notes added by the Editor are marked with an Asterisk.

C A S E S

O F

Persons admitted into the Hospital
at B A T H,

Under the Care of DR. OLIVER.

D I S E A S E S of the S K I N.

CASE I.

SAMUEL WINGROVE, *of the parish of Phillip's Norton, in the county of Somerset, aged 17 years, has been afflicted with a Leprosy three years.*

JAMES CHURCH.

Norton, May 22, 1758.

N O T E.

UPON examination, the young man's account of his own case was as follows :

He was bred to husbandry ; being heated, and in a profuse sweat, by hay-making, he sat
down

down upon the ground, and drank freely of cold small beer and cyder. About an hour afterwards he grew sick and vomited ; had a constant head-ach, and remained much out of order for a week ; he then grew well enough to be able to work as usual. About a month afterwards a small red spot appeared just below his right elbow ; it spread and itched violently ; it grew moist, and the ichor which oozed from it, soon concreted into a branny scurf, as white as snow. Spots of the same kind appeared soon afterwards, in great numbers, round the elbows, knees, hands, fingers, feet, and toes, and a few in his face. His body remained quite clear from any eruption.

He said his mother was subject to the same disease on her skin if she ever drank freely of cold liquors, when she was hot.

His lips were often swoln; and when he heated himself by exercise, especially after walking and hanging down his arms, his hands would swell, and the blotches would burst, chap, and bleed ; but they were soon covered with the white crust, after rest, and the swellings decreased.

This

This youth was of a florid healthy complexion, a good skin, and sanguine constitution. In December he was interrupted in his course of drinking and bathing, by a cold, which required bleeding, and other proper means to relieve it.

This distemper is generally attended with costiveness, which the waters rather increase. To prevent which he was forced to have frequent recourse to opening medicines, during his whole course.

He was admitted July 3, 1758, and was discharged CLEAN, that is, free from eruptions, Jan. 10, 1759.



CASE II.

ELIZABETH JORDAN, *the bearer, has been under my care at the London Hospital some time, for a Leprous Complaint, and I recommend her as a proper object to the Bath Hospital.*

JOHN ANDREE,

Physician to the London Hospital.

London, March 28, 1758.

NOTE.

N O T E.

THIS girl is about sixteen years of age ; of a florid healthy complexion, and good skin. Two years ago she first perceived small red spots about her knees ; which spread gradually ; oozed a little limpid humour, which concreted into a white farinaceous crust, the scales of which were continually falling off, and as constantly succeeded by fresh ones. They afterwards appeared about the elbows, wrists, and the outside of her arms and legs ; her body was quite free from any eruptions ; the crust itched intolerably.

She attributed her disease to her having drank large draughts of cold liquors, when she had been much heated by violent exercise, or hard labour.

She had menstruated once, about sixteen months before she came hither ; but from that time she had never had the least shew till she was taken into the hospital. After her first bathing the Menfes appeared, and she continued regular all the while she was in the house ; but they kept the periods of three weeks.

She

She was taken into the London Hospital soon after the first appearance of the eruption, where she continued ten weeks. She was then discharged *little better*. A month after she was re-admitted, and continued in the Hospital sixteen weeks, when she was discharged *much better*. But eruptions breaking out afresh, she was recommended to us.

Long before any eruption appeared, her feet used to chap and run every winter, and were so sore that she could not go, or stand.

Her upper lip often swelled, as it usually does in scrophulous cases.

She had passed the small-pox and measles, when she was very young.

She was admitted May 20, 1758, and was discharged CLEAN January the 10th following.

When she came in, she was prepared by bleeding and purging, as she was of a full habit, and sanguine complexion. Afterwards she drank the waters moderately, and bathed three times a week all the while she was in the house. The costiveness, to which she was subject, was prevented by a lenitive electuary, with sulphur.



CASE III.

BENJAMIN ORFORD *has had eruptions in his skin, in several parts of his body, for these four or five years, occasioned as he thinks, by a surfeit. The appearance of which has all the time resembled a Leprosy, and in my opinion it is no other than Leprosy. The man has lived in the service of several farmers, and is very healthy and strong, (except this particular disorder) and has been, and is now able to do his business, being very willing to work were he free from this very bad disorder. I think him a proper object for the Bath Hospital.*

J. SHIPTON,

Apothecary at Basingstoke, Hants.

Nov. 1, 1757.

N O T E.

ABOUT fifteen years ago he got a surfeit, (so the country people call any great and sudden alteration of the blood and juices, by drinking cold liquors when they are very hot.) From that time he always felt a weight at the pit of his stomach, attended with faintness and sickness. About six years ago he lay ill of a fever

fever three weeks, in which he was bled and blistered. A fortnight after he recovered from the fever, a red spot, as big as half-a-crown, appeared on his right arm, upon which there soon grew a white, thick, chapped crust, which sometimes bled. The next summer that disappeared; but towards the autumn, the same kind of spots appeared in his legs, and on several other parts of his body.

He was thirty years of age, of a sanguine complexion, and hardy make.

After bleeding and purging he drank the waters, and bathed three times a week, except when he was interrupted in his course by some feverish disorders, which obliged him to omit bathing, and drinking the waters, till by evacuations, and the saline draughts, with a proper regimen, he could again use them safely.

The crusts were all washed off, but the redness and itching remained. He was discharged June 14, 1758, *much better.*



CASE IV.

WILLIAM POPJOY, *of the parish of Phillip's Norton, in the county of Somerset, twenty-four years*

years of age, has been afflicted for these six weeks with violent scorbutic eruptions, on his arms and other parts of his body, but chiefly on the arms; occasioned, as he imagines, by his drinking cold small beer, when he was hot at work.

He has been examined by the physicians and surgeons belonging to the Bath Hospital, who are of opinion, that he is a proper object for the said Hospital.

EDWARD COLE.

N O T E.

ABOUT two years ago he frequently indulged himself in large draughts of cold water, and small-beer, when he was heated by walking very fast; soon after he felt great sickness at his stomach, and pain in his head, which continued a fortnight. Then small pimples appeared about his wrist, with a sense of burning heat, and violent itching. Those pimples enlarged themselves into boils, which grew very painful, inflamed, and suppurated, discharging an ichorous matter, which hardened into a white scab, rugged, uneven at the edges, with a black speck in the middle. The base remained red, inflamed, and spreading every way, but unequally from the centre. In three or four days
the

the scab dried, separated, fell off; a fresh inflammation came on; a suppuration and crust followed as before. These eruptions appeared in every part of the body by turns, but chiefly in spring and autumn.

This man was a tyler by trade; his diet was chiefly coarse bread, and cheese, and fat bacon.

In February he complained of a pain, and coldness at the pit of his stomach, and in his bowels.

It is very common to persons, who are under cure for skin diseases, to be troubled with such complaints, when the eruptions are removed by bathing. Sometimes they are seized with violent head-aches, and nervous disorders. But bleeding, a gentle purge, and then diaphoretic medicines, generally relieve them in a few days, and enable them to go on with bathing again, though it may not be proper to let them go into the water as frequently, or to stay in it as long as they used to do.

This man was discharged CURED *April 17,*
1758.



CASE V.

JOSEPH PORTER, of Trowbridge, wool-scribbler, aged twenty-three years, was, about three months past, seized with an Erysipelas, proceeding, as it's supposed, from an obstructed perspiration, occasioned by his being exposed to long journies in bad weather, which, by the use of medicines, became in a great measure subdued; but it has since returned at intervals, and at present seems inclined to a Leprosy; but in all other respects he is healthy.

The above Joseph Porter, (whose case as herein described by Mr. Farvis, an apothecary) is recommended as an object of charity, and to the favour of being admitted a patient in the Hospital, by, Gentlemen,

Your most humble servants,

RAMSDEN DODSWORTH, Rector,
JOSEPH MORTIMER, Churchwarden.

Trowbridge, Feb. 14, 1758.

N O T E.

THIS man had eruptions on many parts of his body, which appeared in small bladders, and being broke by scratching, or being rubbed

rubbed by his shirt, discharged a little sharp watry matter. This soon concreted into a dry scab, which crumbled off, and left the part under it pretty sound.

About three years ago he had been infected by an itch, which, after two months from its first appearance, had been cured by a black ointment, probably mercurial.

He was feverish several times while he was in the house, which obliged him to leave off the water, and bathing, and to use evacuations, and the saline draughts.

This kind of eruption, which owes its origin to an itch ill cured, we find to be very obstinate. This person drank the waters, and bathed several months without much benefit, fresh eruptions breaking out as fast as the old ones were washed away.

To assist the waters, therefore, he took two drachms of a solution of one grain of *mercurius sublimat. cor.* in two ounces of brandy, every morning for a fortnight. This medicine made him a little sick, but never vomited him, or purged him. It kept up a free perspiration, and increased his quantity of urine. It must not be continued too long. I have known it to

bring on violent head-achs, and sometimes pains in the stomach, and bowels.

After he had done taking this solution, he returned to bathing, which then perfected his cure; and he was discharged Oct. 3, 1757.



CASE VI.

THOMAS HUTCHINSON, of Taunton St. Mary Magdalen, about seven years ago, had a cutaneous eruption, that was thought to be the Itch, and was treated as such, on which it disappeared; since that time it has made its appearance every spring and fall; but by annointing and taking alterative medicines, has often disappeared, till about Christmas last; then he had a dry scab appeared on his head, and since that on his face, and other parts of his body, which does not go off by the former treatment, and is now become the true farsuraceous Leprosy. This is the true state of his case, as taken from himself.

Witness my hand,

FERDINANDO ANDERDON,

Surgeon in Taunton.

May 11, 1757.

NOTE.

N O T E.

THIS man's complaint was much of the same nature with that of *Joseph Porter*.

At first, the waters and bathing had very little effect. He therefore took the foregoing solution, after which bathing took place, and he was discharged CURED, Sept. 19, 1757, having been admitted June 9, of the same year. His disorder was of seven years standing.



CASE VII.

August 11, 1774.

This is to certify, that MARY CLARK, belonging to the Parish of Blaydon, and now living in Axbridge, is about the age of 32, and labours under the following disorder: That ever since she can remember, she has been subject at spring and fall to have cutaneous eruptions, mostly like the itch, break out about her; that her father was always the same, but by taking (at the time of its appearance) a little gentle physic it used to go off, till about ten years since she happened to strike her leg against a stone, and bruised it, whereupon it ulcerated and

was very painful ; she applied to a great many pretenders to surgery, but in vain ; she then was carried to Mr. Lucas, surgeon, at Wells, but in a miserable condition, with both legs and thighs very much tumified and inflamed, and when she rubbed it, (as she could not sometimes avoid through the violent itching) it would break out in small pustules, and discharge a thin glutinous matter ; she had likewise, at the same time, branny-like scales upon one arm, and both knees, and very often aching pains in her legs, thighs, and arms, especially at night when warm in bed ; she was seven weeks under his care at Wells, in which time she was (with taking medicines) made much better, but it was near twelvemonths before the disorder was seemingly conquered : Ever since she breaks out as before, at spring and fall, but not to that height, till about two months since, when it appeared all over her body like the itch ; she was blooded, took physic, and annointed, which almost carried off the eruptions about her body, but settled it in her leg, and now she was in the same manner as when she first applied to Mr. Lucas, only that her thighs are not so much inflamed as they were then, but in every other particular much the same. She was married before she applied to Mr. Lucas,

and

and her husband is since dead, but never had the appearance of any such disorder about him; her child is five or six years old, and never had any symptom of it till his mother's late illness, when it came out in the same sort of itching eruptions. It is observed, that the woman and her parents always had the character of virtuous people.

WILLIAM BRICE, Surgeon.

The mother and child were both admitted, and both were discharged May 28, 1774, cured.

Patients 265 days.

N O T E.

THIS is a history of a violent scorbutic humour, which is not unworthy attention. It must be observed that the husband, who lay in the same bed with his wife was not infected; as likewise that the child shewed no signs of having such a disorder in its constitution, till it arrived at the fifth or sixth, I should rather think, the seventh year of its age; at which period all the fluids undergo a new fermentation, and the circulation becomes strong enough to separate such humours from the blood, and to expel them through the skin.

CASE



CASE VIII.

Gentlemen,

HENRY ROBJOHN, a pauper, of the parish of St. Kerriase, in the city of Exon, about eight years of age, now says, that about ten or twelve months since, he unhappily met with a fall in carrying a burden, by which means he received a slight wound in each elbow, which healed without any great application ; but on its healing he perceived a white scabby cicatrix on the wound, and some pimples arising near the wound appeared crusted in the same manner ; in a small time it spread to the breadth of half-a-crown, and soon after his legs were afflicted in the same manner. He applied to Mr. Cann, an apothecary, who gave him two or three purging draughts ; but the physic having no effect, the lad desisted from taking any more, and applied to me EDWARD MILLES for my opinion : I told him I thought the best way would be to go to Bath, and I humbly conceive it to be a proper case. He further says, that till he met with the above accident, he never had the least blemish on his skin in his life ; and his mother likewise says, that neither
she

she nor his father ever had any thing of the kind in their lives.

Your most humble servants,

EDWARD MILLES, Surgeon.

HENRY FERROL, Warden.

THOMAS ELLIOTT, Collector.

Discharged Sept. 30, 1745, CURED.

A patient 137 days.

N O T E.

IT may appear strange, that a slight wound in each elbow should draw a scorbutic humour to the parts so sharp, that it corroded the cuticula, and formed crusts not unlike what are seen in the mild kind of Lepra, often owing to the persons drinking cold sharp liquors when they are very hot. But it is more strange that the breaking the skin of the elbows should likewise be the occasion of such eruptions on the legs; for till that breaking of the skin by the fall, the boy never had any scorbutic symptoms that we know of. But such saline corrosive particles will float about, mixed with, and dispersed in the mass of the fluids a long time without manifesting their existence, and will be carried out
of

of the body by urine or sweat; yet when the circulation through capillary lymphatics is stopped by a wound or contusion, they will then be heaped together in greater quantities; will by attraction form large *moleculæ*, which will have more powerful corrosive qualities, by which they will be able to eat away the adjacent parts, to excite intolerable itchings, and to cover the skin with foul scabs, according to their own specific natures.

It is probable, that the leg was likewise bruised by the fall, though the greater pain of the elbows, as a more tender part, made the boy not to take notice of it.



CASE IX.

Crewhern, Somersetshire, March 25, 1745.

There's a poor girl about eighteen in this neighbourhood, that laboured under a scorbutic itch, or rather a leprosy; the greatest part of her body and limbs are covered with large scabs, which scale off in white flakes. She had some appearance of this humour when she was about ten, which has increased ever since: About two years since she was brought

brought to me, and then never had her menses ; I then gave her a course of mercurials about three months, and used externally mercurial ointments, which cured her, brought her menses, and she was now quite smooth ; continued so for a few months ; but her menses did not return ; the humours returned again, and she was as bad as ever. About twelve months since I cured her as before, and her menses returned ; but she did not continue well long, neither did her menses return till very lately : she is now almost as bad as ever. Her friends are very poor people, and she works for her bread : I believe your Bath will regulate her menses, and establish her cure : She's a very lusty strong maid.

Your most humble servant,

JOHN BISHOP.

Discharged CURED May 19, 1746.

A patient 370 days.

N O T E.

WHEN the menstrual evacuation does not appear at all, or is very irregular in quantity, quality, or period, and eruptions show themselves on the skin, we reasonably conclude, the deficiencies of the one to be the cause of the appearance of the other ; few cases demon-

C

strate

strate the truth of such an hypothesis so plainly as this does.



* CASE X.

Gentlemen,

SARAH COLLINS, *aged twenty-eight, of the parish of Hammersmith, about seven years ago got a surfeit by drinking cold water when she was very hot. This surfeit shewed itself in an eruption all over her breast, which was removed by a salivation in St. George's hospital; since which operation she has never seen her menses. Upon returning to her work the humour shewed itself violently, and continues so to do; for the cure of which she has been advised by many eminent physicians and surgeons to try the Bath waters; and she having not wherewithal to subsist herself at Bath, during the time necessary for obtaining a cure, she begs the benefit of your hospital, for which she is judged a proper object, by,*

Gentlemen, &c.

WILLIAM OLIVER.

Discharged CURED.

A patient 254 days.

NOTE.

N O T E.

WE may learn from this case, that though a salivation will clear the skin from such eruptions for a time, yet that it doth not always free the constitution from the seeds of the disease, which, when the vessels begin to fill again, and the strength of the patient to return, will bud out afresh. It is scarcely therefore worth while to put a patient to the inconvenience of so troublesome a discipline, for so uncertain and temporary an advantage; especially as mercurials internally given, by way of alterative, will often produce more lasting effects. For this patient was cured, together with drinking the waters and bathing, by taking pills night and morning, which were composed of the Pulvis Plummeri and Pil. Rufi.



* CASE XI.

HANNAH PEW, of Sarum, aged twenty-seven, from her youth uncommonly fat and corpulent, tho' very active and very healthy, always accustomed to hard labour and much exercise. Her monthly periods made their first appearance when she was about

bout seventeen years old, and continued regular in every shape till about a twelvemonth past: She then took cold, and from that time her menses have only made a faint, tho' regular appearance. From this diminution of her monthly periods, a violent impetigo broke out upon her. It first began upon her arms and legs, but has now totally overspread the whole body, except the pit of her stomach. These eruptions form themselves into dry farsuraceous scales soon after their appearance, and she can scarce walk across the room without leaving some of those exuviae behind her. This is her principal complaint, and all inferior ones are consequences thereof. She has taken a great deal of medicine from various surgeons and apothecaries, which I fancy, by her description, were of the mercurial and drastic kind, as she has been kept purging from one dose for seven or eight days together.

WILLIAM HANCOCK.

Discharged CURED.

A patient 62 days.

N O T E.

THIS patient was admitted June 22, was bled the next day, and the day following took a gentle purge. The 25th she began drinking

drinking the waters, and the following alterative bolus was prescribed for her :

℞ Mercur. calcinēt. Granum. G. Guaiac.
terent. simul & adde Theriac. g^r. s. ut. f.
Bol. omni nocte sumend.

She took this medicine only twice or thrice, and though it moved the belly, so as to produce three or four stools every twenty-four hours, yet by the 29th of June it had greatly ulcerated the mouth, and had brought on a very copious spitting. The salivation was not encouraged by any thing given to continue it, as repeated observation had shewn the uncertainty of this measure. It was however left to take its own course, and it continued for a week. On its decline, the patient's bowels were much disordered with severe griping pains, which gave reason to apprehend a dangerous diarrhæa might succeed, as her stools were liquid and very sharp. But these symptoms were removed by the use of opiates, and proper astringents, with the Decoctum Album for common drink.

July 13. All appearances of the Ptyalism, which had produced little or no change in her disease, being over, and her bowels in a proper state,

state, she was ordered to drink the waters, and to bathe. In her morning and evening glass of the waters, she took twenty or thirty drops of the Tinctura Vitri Antimonii.

On the 21st of August she was discharged the house, perfectly cleansed of her leprosy.



* CASE XII.

MARY TOMKINS, (*Ætat.* 22) at five years of age had a surfeit, which every year grew worse. At twelve years of age it appeared a confirmed leprosy, and spread over all her body, head, face, hands, and feet not excepted. She has taken all kinds of medicines. About seven years since she was sent to London to St. Bartholomew's hospital, where she was nine months. They tried variety of medicines, and even salivation. She was turned out incurable. No one person chuses to take her into their house.

WILLIAM HICKS, Apothecary.

Bicester, Oct. 30, 1763.

Discharged CURED.

A patient 220 days.

N O T E.

N O T E.

I Never saw so bad a leprous case. The girl's skin was almost universally covered with large, thick, hard, dry scabs, of a dark brown colour ; except that on her face, these brown scabs were specked with white shining silver scales, which gave her countenance a very shocking appearance. The clefts between the scabs were wide and deep, so that her skin resembled the bark of a tree. And her disease, indeed, appeared to me to be a species of that kind of leprosy, which, from the effects it produces in the skin, has obtained the name of the *Elephantiasis*. She was of a plethoric constitution : Except her leprosy, she was in a state of perfect health.

She was admitted into the hospital the 31st of December 1763. As she was of a full habit of body, evacuations by bleeding, and purging were requisite to prepare her for the waters. When these were undergone, she began to drink the waters, and to bathe twice a week.

The skin having been well washed, and the leprous scabs rendered somewhat soft and supple by these bathings, I ordered, on the 20th of January,

nuary, that she should be annointed all over her body, with an ointment made of the Ungt. e Pice, and neat's foot oil, night and morning; and that during the use of it she should desist from bathing.

She applied this ointment from the 20th of January to the 10th of February, when she was purged, and the next day ordered into the bath.

Her skin by this means was rendered much cleaner from leprosy, than it had been for many years; even, as she told me, than by the salivation, which had been continued for six weeks.

On the 13th of February she was ordered to go on with bathing thrice a week; to drink a pint of the water daily, and to take an alterative medicine, which consisted of a solution of the Mercurius corrosivus sublimatus and the Tinctura Vitri Antimonii, night and morning, in a decoction of farfa parilla.

She was continued in this plan for the remainder of this month, and for the whole of the next, during which period her disease sometimes abated, sometimes increased.

In the beginning of April she was put again on the use of the above-mentioned ointment, and was ordered to desist from the waters and the alterative medicines.

She used the ointment night and morning for three weeks; was then purged, and sent into the bath. Her skin now, after being well washed, appeared in great measure freed of the leprosy. She then returned to her course of the waters and alterative medicines; by the use of which the remaining scabs by degrees dropped off; the dark coloured marks they left on the skin gradually disappeared; and she left the hospital perfectly cleansed Aug. 8, 1764. Since which time we have heard nothing of her.



* CASE XIII.

THOMAS RICKET, (*Ætat.* 16) *a poor boy, has for the greatest part of his life, been afflicted with a briny humour inclining to a leprosy.*

RICHARD CORK,

Surgeon, at Slimbridge.

Discharged CURED.

A patient 57 days.

D

NOTE.

N O T E.

AT his admission, his body was covered in most places with a brown scab, that ouzed a very corrosive ichor.

He could not tell how long he had had this complaint. The disease appeared to be a scorbutic itch, and probably had existed from his infancy.

He was received into the hospital June 12, 1764.

After being properly purged and several times bathed, he made use of the ointment mentioned in the preceding case, from the 30th of July to the 17th of August: On which day he was purged, and the next was ordered into the bath.

After three or four bathings the scabs dropt off. But towards the end of the month the tumour began to shew itself again. He was therefore ordered to have recourse to the ointment, which was used for a week; when he was again purged and bathed. He now appeared free from eruption. To prevent a relapse, he took
five

five grains of Calomel at bed-time for three nights, and on the fourth morning a purge. On the 26th he left the hospital, perfectly free from every the least spot or mark on his skin.

THESE cases, 'tis presumed, will be thought sufficient proofs of the efficacy of Bath waters in Diseases of the Skin : But should further evidence be required, the registers of the hospital will afford it. By them we find, that from May 1752, to May 1764, a period of 13 years, two hundred and forty-one lepers have been received into the house : Of this number one hundred and twenty-two were perfectly cleansed ; eighty-five were much benefited ; twelve received no benefit ; four died ; eleven were improper to be continued ; and seven were discharged for irregularity.

During the same period the hospital has admitted fifty patients under various sorts of scorbutic eruptions. Of these, twenty-six were cured ; eighteen were much relieved ; one died ; and five were improper, from hectic symptoms, to make use of the waters.



RHEUMATISM.

CASE I.

JAMES COLE, of the parish of Upton St. Leonards, in the county of Gloucester, labourer, about thirty-six years of age, has been grievously afflicted for these five weeks last past with rheumatic pains and tumours, together with great weakness of both legs and thighs, which (though in all other respects he is in perfect good health) renders him entirely incapable of labour, and obliges him to be dependent on his parish for his own and his family's support. He therefore prays to be admitted into the General Hospital at Bath, hoping there to obtain that relief, which has in vain been attempted by other means.

The truth of the above case is attested by

JOHN READY, Surgeon.

Gloucester, June 12, 1757.

NOTE.

N O T E.

THIS man, about twelve weeks before his admission into the hospital, which was in the beginning of July 1757, sat down on a moist place, being then heated by working. The next morning he felt pains about the Os Coccygis, and upwards through the back bone to the second vertebra of the loins. Thence it descended along the muscles of the left thigh and leg, and soon after through the muscles of the same parts of the right side. The knees swelled with a sensation of a dead numbness. He was always easier when he was warm in bed.

Three days after his seizure he was bled, but not relieved. He was purged five times, and used an ointment to his knees. From these means he found little or no advantage.

After a gentle purge, he began to bathe, and to drink the waters, a pint and a half a day; he soon found his pains relieved, and by continuing in this course without any medicine, he grew quite well, and was discharged CURED in the beginning of November.

CASE



CASE II.

MARY SCRIGGINS *has, for six or seven years past, been at intervals afflicted with violent pains in her limbs, which have been generally deemed rheumatic, but within these twelvemonths she has been rendered mostly incapable of her service, and now wholly so. Last autumn she went to Bath, and was under the care of **** Henshaw, apothecary, for some weeks, and received great advantage by the use of the waters, under his prudent directions; she says, he called her disorder a scorbutic rheumatism. However, in this time she spent the little money she had saved in service, so far as to disable her from going to Bath again at her own expence; and as she finds her disorder coming on apace, she is very desirous, if it may be thought well of, to be admitted into the hospital. She is about forty years of age, of a pretty good constitution naturally, and has few or no complaints to make, except these great pains and weakness in her limbs, especially her arms and hands.*

If she shall be deemed a proper patient to be admitted, please to send a line directed to Sarah Prankard,

ard, opposite the Drawbridge, on St. Austin's Back, Bristol.

N O T E.

THIS person was about forty years of age :

She had been regular as to her menses, during the whole course of her illness, and continued so while she was in the hospital.

Her first complaint was a pain in her hip joint, from whence it was removed by the use of opodeldoc, with which the part was frequently embrocated. The pains then flew about her, and attacked several other joints. At that time the strange infatuation about *Glastonbury* water overspread the neighbourhood, and she went thither among the crouds of deluded people. She staid there seven weeks, drank half a pint of the water a day, and bathed eleven times; when she had finished this course, her pains were greatly encreased, and her joints so much swollen, that her limbs had almost lost all motion: Last autumn she came to Bath, drank these waters, bathed, and found much benefit, as her case declares. She came again, and was admitted into the hospital July 3d, 1758.

When

When I first saw her she complained of great pains in all her joints, which were stiff, and could not be moved without much difficulty, especially the vertebræ of the neck. Her ankles were much swollen, and pained her so much if she endeavoured to stand, that she immediately fell down, if not supported.

She was of a good habit of body; the viscera were sound, and performed their duty regularly.

Upon her admission, we took nine ounces of blood from her arm; the next day purged her gently; then she began to drink three half pints of the Bath water a day, and bathed twice a week. By this course her pains gradually abated; the gummy swellings at her joints were dispersed; she could turn her head and neck without any uneasiness, and her ankles grew so strong that she could walk almost as well as ever.

In this state she was discharged from the hospital, CURED, December 27, 1758.



CASE III.

Gentlemen,

This is to certify, that the bearer hereof, GEORGE POPE, of the parish of Pottern, in the county of Wilts,

Wilts, is, in my opinion, an object of the Bath hospital, having been troubled with rheumatic pains for some years past, for which reason he was discharged from his Majesty's service.

As witness,

JOHN CLARE.

N O T E.

THIS man is about forty-five years of age, well-made, muscular, and of a sanguine constitution. He served as a soldier in General Bland's regiment all the last war in Flanders.

He supposes that his disease arose from lying on the cold, wet ground. About ten years ago he first felt a very sharp pain in his left knee, without any swelling of the part. Three months afterwards the right knee was affected with the same sort of pain, which did not relieve the left knee at all. In this condition he returned to England, a year and half after his first attack of pain. Soon after he began to feel flying pains all over his body; his joints, vertebræ, and sternum, upon motion, or pressure might be heard, or felt to crackle, as is usual in Scorbutic habits. His pains were always greatest in hot weather. He was sent to Guy's hospital a year

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and

and half ago. He staid there twenty weeks, and was discharged incurable. He then returned to his regiment, of which he was a corporal. July 16, he was discharged as unfit for service, having lost many motions of his right arm, and being not able to walk without great pain and difficulty.

Nov. 3, 1758, he was admitted into our hospital.

I examined him Feb. 5, and found his pains were much eased ; the joint of his right shoulder crackled under pressure, but no other part; he had quite recovered the use of his arm, he could walk stoutly, and without pain.

He was discharged *fit* for his majesty's service.

Note, In cases where the joints crackle, from dryness, our surgeons advise, that the parts should be well embrocated with neat's-foot oil, especially after bathing, when the pores being cleansed and opened, the oil will enter with more readiness, and penetrate deeper than it will do at any other time.



CASE IV.

WILLIAM STEPHENS, *about four years ago, after a hard day's labour at his trade (being a blacksmith) was seized with a violent pain in his neck and shoulders, which extended also to all his limbs, and confined him wholly to his bed for eight months. Two months after, he was sent to this place, where, by bathing and drinking the waters ten weeks, he recovered his health and strength so as to work at his trade for near two years after; and then, by taking great cold, was seized in his loins, with weakness in his knees, so as to hinder him from walking across his chamber; then he came hither again, and in seventeen weeks recovered his strength a second time; so that he has not been able to get his bread by his labour till within these six months past. And now, the third time of his coming, he has been here ten weeks, and in a fair way of recovery, and begs to be admitted into the General Hospital, having been hitherto at Billet's Hospital, where he finds sustenance fall short: He is provided with a certificate from Portsmouth, and a deposit of the three pounds.*

S. BUSH.

Discharged March 27, 1754, *much better.*

A patient 188 days.

N O T E.

I Think this is a remarkable instance of the power of Bath Waters, in removing the pains which were so often brought on by taking cold upon having been violently heated, even after so many relapses.



CASE V.

THOMAS ODY, of Wroughton, the bearer hereof, has for twenty years past been afflicted with rheumatic pains in his limbs, occasioned at first by an itch ill treated, and is thereby rendered incapable of labour; and having twice tried the Bath, whereby he received benefit; but by extraordinary expences not being able to continue its use for a sufficient time, is recommended as a real object of charity.

Your most humble servants,

GEO. MODD, surgeon, &c.

Discharged May 14, 1746, better.

A patient 69 days.

N O T E.

THIS case ought to make us careful by what means we suffer an itch to be cured.
It

It will likewise put the physician upon enquiring, when he meets with anomalous erratic pains, whether his patient ever had the itch, and how it was removed from the skin.



CASE VI.

WALTER FLEA, *he has been afflicted with a swelling in both ancles for these three years past, proceeding from cold ; but the swelling has been now gone off for about half a year, and left such a great contraction of the Tarsus and Metatarsis, that he can't walk but with the greatest difficulty : He is likewise troubled with rheumatic complaints. His age is about forty.*

N O T E.

THIS man was an officer of the excise. By standing in a cold, damp cellar, to watch a soap-maker, he contracted a rheumatic habit, being afflicted with sharp flying pains in all his limbs. His legs swelled very much, and his ankles, and feet were œdematous. The pains were severe by fits, which sometimes lasted for a fortnight, attended with a fever ; then the

pains ceased, leaving the limbs very weak, especially the ankles. He is just now getting out of one of those fits, which has been pretty severe. He is now free from all feverish symptoms.

After proper evacuations, he began to drink and bathe in the beginning of June 1757. He was very costive, and was obliged to take half a drachm of the Elect. Cariocostinum every other night. In order to unload his legs, which still swelled, especially towards night, he now and then took a jalap purge.

June the 10th. His pains are much easier, and his legs and ankles do not swell so much.

July 14. He has no complaint remaining but the weakness of his ankles, which grow stronger by pumping. He was then discharged, *very well recovered.*

This man's disorder was relieved much the sooner by the warmth of the season, which kept up a constant free perspiration between the bathings, to which cold weather is very unfavourable. When this great evacuation was checked by the autumnal winds, his pains returned,

turned, and, upon his own petition, he was re-admitted Nov. 18, 1758.

May it please the worthy gentlemen, doctors, and surgeons, to the General Hospital in Bath, the humble petition of Walter Flea, humbly sheweth,

That whereas Walter Flea, of Calne, in the county of Wilts, was sometime since a patient in the above named house, and was turned out CURED, but having since a relapse of my disorder, humbly implore the worthy gentlemen for a re-admittance, which will infinitely oblige,

Your afflicted humble servant,

WALTER FLEA.

His symptoms were much the same as before; but he did not receive benefit as fast as he did in the warmer months. The waters seemed now to want some assistance; and as he was still costive, he was ordered an opening electuary with Gum Guaiacum. By degrees he got rid of all his complaints.

CASE



CASE VII.

Oxford, Feb. 7, 1745.

JOHN BEASLY, of St. Michael's, Oxford, has for two years past been afflicted with painful swellings in his legs. After taking medicines here to no purpose, he was recommended to the Infirmary at Westminster, and was discharged from thence without being relieved. The physicians and surgeons of that hospital advised his going to Bath, as being the most likely means of serving him.

JOHN HUME, Apothecary.

SAM. MATTHEWS, ditto.

Admitted May 1, 1746.

Discharged July 7, 1746, CURED.

N O T E.

THIS is much to the credit of the Bath hospital, where the patient received a cure after he had tried all means at Oxford, and in the Westminster infirmary to no purpose.

Probably

Probably nothing but a gradual solution of the viscid state of his juices by warm bathing could have effected his cure.

* THE efficacy of Bath Waters in Rheumatisms is so generally known, that to produce more cases in proof of it would be unnecessary: But it is *not* unnecessary to observe, that their power is chiefly confined to that species of Rheumatism, which is *unattended* with inflammation, or in which the patient's pains are *not increased by the warmth of his bed*.



CACHEXY and SPINA VENTOSA.

C A C H E X Y.

CASE I.

Bradford, March 23, 174 $\frac{3}{4}$.

JOHN HUCHINS *has for near six months laboured under an ill state of health; he was first seized with an ague, which, for want of due care and proper*

proper helps, was succeeded by a cough, swelled legs, &c. which reduced him to a very weak state; and he being deprived of the proper means of procuring assistance, begs admission into the Bath Hospital.

WILLIAM HARRIS, Apothecary.

Discharged CURED.

A patient 93 days.

N O T E.

THIS case may teach us, that in some scorbutic cachexies the waters may be drank with safety and advantage, though the legs swell, the abdomen is puffed up, and a teasing cough comes on.



CASE II.

The case of OLIVE HANCOCK, aged 37, appears to me to be an universal Cachexy of the whole blood and humours, from a sudden return of a scorbutic humour, occasioned by being made wet, when very hot, in hard walking, and from that time has
been

been subject to various complaints, as a load in the stomach, a pain in the bowels, and sometimes in the limbs; the bowels at present are very much obstructed, and have been for these twelve months past; she has several ulcers in her legs, but has not had them more than two months; she has taken purging, altering, and cordial medicines, but they have taken little effect; and not being able to support herself in this her calamity, does humbly ask charitable assistance.

JOHN PITT,

Surgeon and Apothecary at Cricklade, Wilts,
near Ashton Keins, the parish of the above
mentioned Olive Hancock.

N O T E.

THIS woman enjoyed pretty good health till about ten years ago. Then, after walking till she was very hot, she was caught in a hard shower of rain, on Michaelmas day, it being very cold and windy. Upon her return home she went to bed, rose very well the next morning, and continued so for a fortnight; a pimple then appeared near the ankle as big as a pea, inflamed; and was very painful; soon after the legs and arms were overspread with numberless

berless pustules, which were not so high above the skin, or so inflamed, or painful, as the first pimple ; but she felt great pains in her legs and arms, at the bone. These eruptions were covered with a white scurf. They appeared and disappeared frequently. When she was freest from them, her bowels was affected with windy cholic pains, which grew easy again upon a fresh appearance of the spots. At the end of five years, from her first taking cold, the eruption quite disappeared, probably from frequent purges, and other medicines which she used. She then began to feel a pain at the pit of her stomach, which by degrees affected her whole breast, shoulders, and neck, but was so violent in her back bone, that the vertebræ, between the shoulders, began to start, first one, then a second, and then a third. From the compression of the spinal marrow, she began to feel a numbness at the pit of her stomach, round her sides, down her thighs, legs, feet, and toes ; she soon after lost the power of motion, and the sense of feeling, in her lower limbs ; her urine flowed involuntarily, the sphincter of the bladder becoming paralytic ; whilst she was constive from the defect of the peristaltic motion of the intestines, and the want of the power of expelling

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ling the fæces. Her bowels had a sensation of numbness, yet they were in violent pain. She had often cold shiverings, burning heats, and clammy sweats. When she came into the hospital, we found her much emaciated, very weak, a quick pulse, and brown tongue, very dry in the middle. This state rendered her a very improper object; however, as these symptoms might be brought on, or much aggravated by the great fatigue of her journey, in a jolting cart, we let her rest a few days, rather with hopes of her becoming capable of returning home, than of doing her any service. By a cooling temperate regimen, and rest, she became less feverish, and gathered a little strength. Then, at her most earnest request, as the last thing she had any hopes from, after having assured her that she would receive more harm than good from bathing, we permitted her to be carried to the bath, in which she was to stay but a few minutes. After a few cautious trials, she was convinced that she grew weaker, and more feverish. She was forbid to bath any more. We endeavoured, by cooling and nourishing her with a slender diet, to render her capable of bearing the journey, and then discharged

charged her, as an improper object for our hospital, Jan. 31, 1759.



CASE III.

ELIZABETH COLEMAN, of Keovil, Wilts, about twenty years of age, by great tremblings and catchings in her lower limbs, from September last, gradually lost the use of them. She does not apprehend it proceeded from any cold taken at that time, but rather from frequent surprizes and ill usage. She has her menses very regular, and seems to be naturally of a very good constitution. She now receives relief from the parish, who have promised to lay down the caution money, and procure every thing proper for her admission into the hospital, of which I think her a proper object.

Your's, &c.

JOHN MORRIS.

July 12, 1747, dead.

A patient 427 days.

NOTE.

N O T E.

THIS poor girl was bound out an apprentice by the parish. Besides the palsy of her lower limbs, which the case sent to the hospital mentions, she had all the symptoms of cachexy brought on by bad diet, unkind usage, and anxiety of mind. Our best endeavours could afford her, though long kept in the house, no benefit; which induces me to insert this case, to shew the dreadful consequences which are likely to follow, from the barbarous treatment such poor creatures often meet with from their inhuman masters and mistresses; to which their no less cruel parishes oblige them to submit for many years, if they prove strong enough to bear it. If the miserable being dies under the tyranny, the master is hanged, and the parish rejoice that they have got rid of two nuisances at once.



CASE IV.

May 19, 1746.

RICHARD CROCHER, *of the parish of Houlton, in the county of Somerset, got the itch about five months ago, for which he was struck with a*
mercurial

mercurial ointment, from which time he has been afflicted with a violent pain in his stomach, a constant sickness after eating, a dizziness in his head, with vertigos; his sight almost quite obscured by clouds flying before his eyes generally of a green colour; he felt a sense of creeping insects throughout all his limbs, with frequent throbbings and subsultusses; the bottom of his feet burn, prick, and shoot, so that he walks with difficulty, yet they sweat plentifully. He is about thirty-three years of age.

W. OLIVER.

Discharged Dec. 3, 1746, much better.

A patient 171 days.



SPINA VENTOSA.

CASE V.

Nov. 23, 1743.

JOHN STADHOLME, aged twenty-seven years, was seized with a white swelling in the year 1740, which we believe came by cold and hard labour at his trade in winter time, and under which he has miserably laboured ever since; he is now rendered incapable of getting his bread by trade or otherwise,

*wise, and has nothing else thereby to support him :
We humbly hope the governors and gentlemen of
the committee will be pleased to admit the said
John Stadholme, as a real object.*

THOMAS NICHOLSON, Curate.

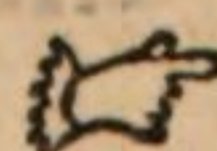
Discharged April 28, 1774, *incurable.*

A patient 165 days.

N O T E.

A True Spina Ventosa seldom, or never, receives benefit, but often harm, from the use of Bath waters. I suppose we were in hopes, that as the case was drawn by the curate of the parish, it might be mistaken ; as other swellings of the joints often pass for spinas, when they are not really so. When the poor man came, we were not willing to send him back without a trial of what could be done for him ; but the event was as we had reason to fear it would be. Had this case been drawn up by a skilful physician, or surgeon, the sick man would probably never have had the trouble to come from his own home. In this description no symptoms are mentioned, which is a great defect, by which we could not form a right judgment of the case.

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☞ When we discharge a patient *incurable*, we always mean no more than incurable by the Bath waters, under the patient's present circumstances.



S C I A T I C A.

CASE I.

SAMUEL FRANCES, *of the parish of Batcombe, in this county, labourer, aged between 50 and 60, has been for three months past afflicted with a Sciatica, which has rendered him unable to work. I examined him in the parish where he lives, and think him a proper object for this charity. I am,*

Your humble servant,

Bath, Oct. 7, 1758.

JOHN DONNE.

N O T E.

THIS man was 62 years of age, of a healthy complexion, and good habit of body.

About twelve months ago, as he was walking on the ice, his feet slipped, and his back-side

side came to the ground. He felt great pain from his fall, which seemed to him to lye deep towards the bone; the external parts were not discoloured, as they generally are from bruises. He was very lame, and got to his house, which was a quarter of a mile distant, with great difficulty. The pain by degrees descended to his ankle, without attacking the knee in its way. His hip grew easier, as the pain in his ankle increased; a month after the knee grew very painful, but his ankle was not relieved. No swelling appeared on either of the parts affected.

When he was admitted into the hospital, Nov. 24, 1758, the pains were very sharp in the knee, leg, and ankle; he could not walk without a support, and then with much pain and difficulty. He found immediate relief from bathing; his pains decreased every time he went into the water, and the strength of the limb proportionably increased. When he was discharged, Jan. 31, 1759, he declared that he was quite free from pain, that he had been so above a fortnight, and could then walk as well as ever he could in his life.



H I P C A S E.

CASE II.

JOHN HUGHES, of the parish of Rexham, in the county of Dunbrigh, was about June last seized with a violent pain in his right hip, attended with a strong symptomatic fever, and an atrophy of the whole limb, great disproportion of the joints, from whence there is reason to fear a luxation, if the obstruction of the joint gland is not removed; which the warm bath, with drinking, seems to bid fairest to do: Joined to his disorder his poverty renders him a proper object for the General Hospital.

October 20, 1743.

J. P. ch.

Discharged Nov. 24, 1743, CURED.

A patient 34 days.

N O T E.

THIS remarkable cure was performed in 34 days. He was bled as soon as he was admitted; then took a purge of pil-coch min. with calomel, drank the waters sparingly, bathed twice a week, then three times, and took an opening

opening electuary, composed of two ounces of lenitive electuary, one ounce of æthiops mineral, half an ounce of lac sulphuris, and a sufficient quantity of solutive syrup of roses. This was his whole process under my care. Such opening electuaries we are frequently obliged to give during the use of the waters, which prove binding to most people. Though persons of very weak bowels will sometimes be strongly purged by them, especially if they drink them without having duly prepared the primæ viæ.

* *Note*, I have often observed, those purgings which are brought on at first drinking the water, prove in the end, if properly managed, very beneficial to the patient.



CASE III.

WILLIAM HOPKINS, a poor sheerman, of 21 years of age, and of the parish of Midsummer-Norton, in the county of Somerset; his pain he says lies mostly in his right hip, but that it moves sometimes from thence to his knee, quite down to his ankle; he finds great weakness in those joints, but perceives no swelling; he informed me likewise

that in cold weather his pain increases, and that he imagines his disorder was occasioned by a chill which he took about a year ago: This account of his case I had from his own mouth, and hope it is such as may entitle him to admittance into the hospital, and the benefits he may there receive.

GEORGE FIDDES,
Curate of Midsummer-Norton,

Discharged Sept. 10, 1745, *better.*

A patient 120 days.

N O T E.

THIS patient was under the care of Dr. Oliver, who remarks, that his disorder was a beginning hip case; and that such complaints, when recent, and in young subjects, are commonly relieved in our hospital.

* WE frequently have patients sent to us whose complaint, in the description given of their cases, is said to be the Sciatica, or Hipgout. But as the symptoms of their disease are not confined to the idea which this term conveys, I shall here enumerate them.

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If you enquire of these patients where their pain is situated? some will point to the groin; some to the great trochanter of the thigh bone; and others to the junction of the os innominatum with the os sacrum. Temporary pains are also often spoke of in the knee, the shin, and ankle of the diseased limb. Pain in the *acetabulum* of the os innominatum is frequently *never* mentioned; and many of these patients can bear to have the head of the thigh bone moved round in its socket without the least uneasiness. The diseased limb is sometimes shorter than the sound one; but it is much more frequently considerably longer. If the buttocks be examined, that of the diseased side will be found lower than that of the well side. I have seen several instances, where the obtuse process of the os innominatum has been an inch and a half lower than its natural situation.

This disorder is sometimes brought on by colds, which have been caught by sitting on damp ground. Sometimes it is the consequence of external injuries, as falls, leaping down from high places, &c. And very often no assignable reason can be given for it.

It happens indifferently to persons of all ages and constitutions. I could never discover, after
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the most careful enquiry, that those of scrophulous habits were more liable to its attacks than others, who had ever been free from glandular obstructions.

Its approaches are generally made by slow and almost imperceptible degrees. A kind of weariness, an inaptitude to motion, is at first perceived in the limb; which in children has frequently been taken for some trick they had got in walking, till the subsequent pains have at length given but too convincing a proof to the contrary.

The miserable patient often long languishes under this cruel disease. His pain grows more continual and more violent. Inflammation arises, matter is formed, a hectic succeeds, and he dies tabid. Or if the abscess breaks, or is opened, the flux of matter is usually more than his strength can support, and he sinks under the discharge.

Dr. Oliver justly remarks, that when the case is recent, and the patient young, our waters frequently effect a cure. To which I must add, that when the disease has been of long standing, they seldom do much service; and if the parts are much inflamed, but particularly if
matter

matter is formed, the use of them is highly injurious.

Our usual method of treating such cases is as follows : We do every thing we can to prevent inflammation, or if it exists to remove it. We depend more on the external than on the internal use of the waters. And such patients are usually restrained from drinking them till the disease begins to give way ; and even then they are prescribed in small quantity, and are sometimes softened with milk, or cooled with spirit of nitre.

We frequently purge such patients, and with advantage. Some of them require, and are benefited by mercurial physic. Bleeding is not omitted ; cupping on the part is exceedingly serviceable ; and emetics are often very useful. All these several evacuations are repeated during a course of bathing, as circumstances demand.

When the patient bears bathing well, that is, if his pain is not increased by it, and more particularly if it abates his pain, we reasonably entertain hopes of his recovery. But bathing, though it should considerably lessen the symptoms of the disease, yet it is not always able to perfect its cure. In this case, we have recourse
to

to the pump, and the success answers our wishes. This application, however, must be made with great caution; and should immediately be desisted from if the pain is increased by it. Under the circumstances of the patient's being relieved, though not cured, by bathing, and yet unable to bear the pump, I have known him receive the greatest advantages from emetics, and the application of lime cataplasms, sometimes of blisters, to the diseased parts.

When bathing makes such patients feverish, and increases their pains, no benefit is to be expected from it; particularly if, after carefully repeated trials, *these effects* are constantly observed. And if they are sent to us in the last stages of the disease, when matter is formed in the part (which too frequently happens) we are obliged to return them to their homes as soon as possible.

Upon examining our registers it appears, that from May 1761 to May 1773, there have been admitted into the hospital 296 hip cases. Of these, 192 have been perfectly cured or greatly benefited; 2 received no benefit; 2 died; 1 was discharged for irregularity; and 99 were improper to be continued.

STOMACH



STOMACH CASES.

CASE I.

ANN ASHWORTH, of the parish of St. Brides, London, is about twenty-five years of age, is a maid servant at present, but from her illness is incapable of doing her business; her disorder is a violent pain at her stomach, with which she has been afflicted for the best part of five years, being seldom free from it above three or four weeks together; she has taken almost all kind of medicines usually administered in such cases, but has found only a temporary relief from them. We hope the Bath waters will be of service to her, and esteeming her a proper object of charity, recommend her to your hospital.

DANIEL COX, M. D.

Discharged Sept. 31, 1745, CURED.

A patient 98 days.

CASE



CASE II.

JANE WALKER, *spinster*, about 28 years of age, of a thin, cold habit, has been for a long time subject to a violent pain in her stomach, attended with frequent irritations to vomit, so as not to keep any thing in her stomach; sometimes free of that complaint; but then violent gripings in her bowels without costiveness; the cause I presume to proceed from a weakness of the digestive faculty: All the means that have been used for her recovery have proved unsuccessful, and I humbly conceive that the Bath waters would be of service to her.

JOSEPH YOUNG.

Discharged Oct. 11, 1744, CURED.

A patient 149 days.



CASE III.

JANE NOYCE, *housemaid* to Lord Conway, has been long afflicted with a disorder in her stomach and bowels, attended with pain and indigestion, without any scurvy, and may, in my opinion, be very likely to receive benefit by the Bath waters.

E. WILMOT.

Discharged Sept. 22, 1743, CURED.

A patient 131 days.

NOTE.

N O T E.

THOUGH diseases of the stomach are oftener relieved by the Bath waters than any other, yet we have fewer cases of that kind sent to the hospital, than of those who labour under the infirmities of their limbs. Perhaps the poor are less liable to disorders of the stomach than the rich, from their different manner of living. Another reason may be, that such disorders do not render them as incapable of their usual work, as the loss of their limbs does, and consequently they do not become burthensome to their parishes, to prevent which is one great motive to their being at the expence of sending them to the hospital.



* CASE IV.

WM. COLLINS, of Butleigh, has for some time laboured under a dangerous disorder, which Bath waters to me seem likely to remove. I apprehend there is some obstruction in the passage from the stomach to the duodenum. What suggests this conjecture is, that as soon as he has taken the smallest quantity of any solid food, it gives him most excruciating pains in his stomach till it comes up again.

gain. And lately, if he eats any thing more substantial than broth, his stomach immediately swells like a blown bladder, and his breath is almost gone.

S. HOOD.

Discharged CURED.

A patient 72 days.

N O T E.

THIS patient was 30 years of age. About three years before he came to Bath he caught a severe cold, and from that time was more or less troubled with indigestion, flatulency, and pain in his stomach. By degrees the pain of his stomach became more constant, and more violent. To this was added an excessive degree of costiveness. No solid food staid in his stomach. He kept down broth better than any other sort of nourishment, but even that he frequently flung up. About a quarter of a year before his admittance into our hospital, he began to discharge a clear insipid rheum from his mouth, which ran off to the quantity of four or five pints every twenty-four hours.

He was much weakened and emaciated, and seemed falling into a hectic.

He

He was prepared for the waters by a warm stomach purge. He began to drink them in small quantities. They sat easy on his stomach, and in three days his vomitings were removed. The quantity of the waters were gradually increased, till he drank three half pints of them in the day. He grew regular as to stools, and the discharge of the rheum from his mouth gradually decreased. He left the hospital perfectly free from all his complaints.



* CASE V.

SOLOMON DE MATTOS, of St. Botolph's, London, aged 54, was recommended to Bath for a stomach complaint. His case was similar to the preceding one, and was of near three years standing. His digestion was greatly impaired. He had continual reachings, in which he frequently discharged large quantities of a thin transparent humour. At times he had accessions of a hectic fever.

N O T E.

THIS latter symptom made it dubious, whether he should be allowed to drink the waters: But on the supposition that his fever might

might originate from inanition, he was allowed to try them ; and in seventy days they completed his cure.

Bath waters are usually forbid when feverish symptoms appear, but there can be no general rules without their exceptions. If the feverish symptoms are owing to an inflammatory state of the fluids, or from matter, drinking these waters would certainly destroy the patient: But when nervous debility occasions fever, they may, if taken with due caution, produce very happy effects ; of which these two cases are sufficient proofs.



* CASE VI.

ELIZABETH VICKERS, *of the parish of Shenly in Hertfordshire, about 46 years of age, has for several months complained of great pain in and about the stomach, which pains were often accompanied with eructations and vomitings.*

It seems that prior to these complaints, she was subject to recurrent pains in her feet, which occasioned a suspicion that the symptoms above-mentioned were of the gouty kind. Agreeably to this hypothesis, the case was treated with warm purges, cardiacs, and stomachic medicines: But after a long pursuit
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of this method, no gouty paroxysm appearing, and indeed little or no benefit arising to the patient, excepting those short temporary reliefs which all warm spirituous compositions occasioned in common, it was judged proper to direct saponaceous and aloetic medicines, which were afterwards followed by a course of aromatic bitters, and chalybeates.

This latter pursuit seemed to avail the patient considerably ; but nevertheless was far from effecting a cure ; for the pain, sickness, &c. every now and then returned, although not so severe as formerly either as to degree or duration.

**** COTTON, M. D.

Discharged CURED.

A patient 95 days.

N O T E.

AFTER a proper preparation, this woman was put upon a course of the waters. She continued drinking them for near a month, without their producing any sensible alteration in her complaints. About this time she complained of great sickness, attended with a sensation of weight and load at her stomach. An emetic was given her, and she brought up more than a pint of thick black bile. After this discharge,

charge, she sensibly found the waters do her good. Her appetite mended, her digestion became perfect, and her evacuations regular.

She was discharged relieved of all her complaints, without having had any gouty paroxysm to assist in their removal.

It is not unusual for persons to resort here, impressed with the idea that their complaints are produced from gout. Some who are afflicted with wandering pains in their limbs, want of appetite, indigestion, and lowness of spirits, will call their complaints a flying gout. Others who are subject to severe pains in the stomach, attended with violent reachings, &c. conceive their disease to be the gout in the stomach: When the complaints of the former proceed from a bilious acrimony in the habit; and the complaints of the latter from gall stones.

DR. OLIVER observes, That hot mineral waters may not improperly be said to consist of soul and body. The soul which warms, enlivens, and keeps all their component parts in a due motion and mixture, is fire, that most active, as far as we know, of all material beings. As soon as the waters are exposed to
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the open air, this ætherial substance, cloathed in the most volatile* and *sulphureous *particles of the composition, breaks through its watry prison, and wings its way towards its kindred element. When this spiritus rector has taken its flight, the remaining mass becomes cold and lifeless ; its parts separate, and form moleculæ, which by degrees become too weighty to be suspended in the vehicle, and appear precipitated to the bottom of the vessel in which they are contained. The spiritus rector seems to act by re-animating weak, cold, flabby, animal fibres, and reviving cold, viscid, vapid animal fluids, by uniting with them, and rendering them again warm, spirituous, and active. When the solid contents of the waters are no longer under the influence of the spiritus rector, they still retain, during some weeks at least, qualities not unuseful to the animal œconomy, though far inferior to those virtues which the waters possess when drank, as quick as possible, from the spring head. The solid contents, by gently irritating the muscular and nervous fibrillæ, restore, and strengthen the peristaltic motion of the bowels, and promote glandular secretions ; operations of the greatest

* The Phlogiston.

consequence, either to the preservation or restoration of health. *

A remarkable history of the powers of Bath waters, in each of these different states, will be more satisfactory to the reader than any hypothetical reasonings about them can be.

Mrs. Griffith was a lady well known; and by her great good-nature, and continual flow of chearful spirits, much beloved and carested by all who knew her. About thirty-five years since, great anxiety of mind threw her into a diarrhea; followed by an entire loss of appetite, perpetual nausea, and vomitings up of every thing she attempted to get into her stomach. The great Dr. Friend was her physician; but the disease was too obstinate even for his skill to conquer. Tired with taking medicines, and finding herself grow worse, she, by the advice of some friends, asked the Doctor whether the Bath waters might not be serviceable in her case.

** If the theory contained in the above note should not be allowed, yet the practical observations it contains, and which the two following cases confirm, may be a sufficient apology for its insertion.*

case. The Doctor, tired as much as his patient by so long and fruitless an attendance, readily acquiesced in her making the trial ; but without any very favourable prognostic of the success. She no sooner began to drink the waters than she felt her stomach and bowels mended by them ; her symptoms were all relieved ; the looseness grew very moderate ; she took down food, and digested it ; and after drinking the waters about five or six weeks, she returned to London in such health, strength, and spirits, that her friends received her with joy and surprise. The benefit she found from this first Bath journey, lasted about a year and a half ; when, from what cause I don't recollect, her bowels began again to be out of order, and all her former complaints returned. Whither should she fly ? but to the waters which had done her so much good, when in the same circumstances. I was then in London, and came down with her in her own coach to Bath. I was then an eye-witness of her miserable circumstances ; the diarrhea was violent ; the vomiting as constant as she ever attempted to swallow any thing, either food or physic ; except a spoonful now and then of brandy burnt

on a lump of sugar, which staid in her stomach, and was almost her only support. As soon as we reached Bath, she made all possible haste to the pump ; and I saw her drink off a middling glass of the water, with an eagerness and joy which we may form the justest idea of from the figures in Pouffin's charming picture of Moses striking the rock. The miracle was almost as great. She drank another glass, and declared that she felt herself quite well. From that hour she took down food, retained, and digested it ; the looseness became moderate, and her spirits rose a degree or two above temperate. Having drank the waters the usual time, she returned to London in good health, and remained so for many months ; but by the next year she felt some admonitions from her stomach and bowels, to put her in mind that she ought to have recourse to her great remedy, before she was driven to it by a total return of her complaints. She did so, and with the same success. But her constitution was too delicate, and her frame too much shattered by illness, to be capable of being restored to strong, or lasting health ; yet by the help of Bath waters she lived a most comfortable sprightly valetudinarian all the rest of

of her days. Many years she divided between this place and London, when she often enjoyed pretty long intervals of ease; but as soon as her stomach or bowels put her in mind of her former sufferings, she flew to the Bath waters, which never failed immediately to charm away her disorders. As she grew older and more infirm, she found herself become less and less capable of bearing any long absence from her great restorative, and that her London journies were more and more fatiguing, as she was less able to bear their inconveniencies. She therefore made this place her fixed habitation for the future. Here she spent her days in social pleasures among her numerous friends, never omitting her visits to the pump, from which she received her daily support; and nobody ever was more sensible of, or more thankful for the inestimable blessing. During some years before her death she took very little food; and if she did not keep her stomach alive by the waters, she could take none at all, but began to nauseate the sight and smell of victuals, till she could get a glass of the water, as hot as possible, which alone could enable her to eat a mouthful. Thus, by continually pouring
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ing a little oil into the lamp of life, though it burnt dimly, it did not quite go out till the fourth day of February, 1762, in the seventy-sixth year of her age.

Many years ago Dr. Moore, a practising physician in Dublin, brought his wife hither, and put her under the joint care of Dr. Cheyne and myself. She was between thirty and forty years of age, and extremely emaciated by the following illness. She had generally no evacuation by stool for nine days; the eighth or ninth day approaching, violent pains of the bowels, particularly of the lower gut, came on, which threw her into hysteric convulsive fits; they followed one another till by frequent spasmodic endeavours, which admitted of very little assistance from art, she was delivered of several hard balls of fæces. From the moment of her delivery she grew easy; soon recovered the fatigue; was free from hysterics; was in good spirits, and continued so till towards the next ninth day, when the same tragedy was acted over again. The faculty in Dublin had given her all the aid medicines could afford, but without the desired effect. When she had drank the Bath water some weeks, she had her periodical evacuation
with

with tolerable ease ; without hysterics or violent gripings. By degrees she grew to have stools once in two or three days, and for some time before she left this place, she had regular evacuations that way ; recovered her flesh, and a good state of health. When she returned to Ireland she took with her a quantity of Bath water, which she warmed and drank every day. As long as that lasted she continued regular ; but when that was out, she found herself gradually relapsing into her former state of costiveness. She tried all the water shops in Dublin ; but found no Bath water which would answer her purpose, probably from having been kept too long : She then sent us an account of her distress, and desired that she might have some fresh-bottled water sent over by the first opportunity. Some time after, the Doctor informed us with great thankfulness, that the waters we sent had fully answered the end, and that his wife had, by their use, recovered regularity, ease, and spirits, and therefore desired that we would continue to send fresh supplies of the water.

The following OBSERVATIONS on STOMACH COMPLAINTS, were found among Dr. Oliver's Papers; and from the many useful Remarks which they contain, have been deemed proper for Publication.

THE food, having been prepared by mastication, and the mixture of the saliva, is conveyed into the stomach, there to be concocted by a gentle heat, and mixed with such juices as shall promote its further resolution. While all the parts subservient to this operation are sound, and healthy, the stomach receives this pulp with pleasure, and digests it with ease. But no organ of the body is more subject to a greater variety of disorders, than the stomach; and no medicine is found to be so efficacious in removing many of them as our Bath waters.

When the fibres of the stomach are weak and relaxed, so that its coats grow soft and flabby, having lost the power of exerting their nervous and muscular force on their own glands, and on the pulpy food which is transmitted
from

from the mouth ; the secretions of those juices which should there be mixed with the mass to be digested, are slow and languid ; these humours grow thick, tough, cold, and phlegmatic ; they stick to the plucky coat of the stomach, fill up all its interstices, and choak the passages, which open into its cavity, and that send both fluids and steams into it, of great service in the business of digestion.

Such a diseased state is often brought on by many accidents which affect the mind with grief and melancholy ; than which nothing more surely destroys the natural heat, strength, and firmness of the body. Women are more subject to this disease than men, from the natural looseness of their fibres, and their sedentary manner of living. Men, who give up exercise and labour, for which their bodies were originally framed, and apply themselves with too much eagerness and diligence to studies of the feverer kind, especially in a leaning posture, seldom escape falling into this state, which I shall now describe.

When the stomach is in this condition, instead of receiving the food with desire, it suffers

fers a disgust from the very action of swallowing it.

Soon after a few mouthfuls are swallowed, a nausea ensues, the appetite ceases, and the meal is at end; except from the fear of being starved, and the earnest persuasions of friends, they force down a few morsels more.

When the food reaches the bottom of the stomach, it is soon surrounded and entangled with a quantity of cold, clammy, slimy mucus, which prevents its further solution; and which smearing it all over preserves it in a crude inactive lump, whose weight becomes sensible, and is complained of an hour or two after eating, and remains so a longer or shorter time, according to the degree of the distemper. When this indigested lump lies long at the bottom of the stomach, it grows sour, distends the cavity with vapours of a like nature, which go off in disagreeable and sometimes painful belchings.

Persons whose stomachs are thus diseased, have pale complexions, bloated countenances, hollow eyes, with a dark circle round them. They are low spirited, often sigh, are inactive, gape and yawn frequently, have pale lips, and
cold

cold whitish tongues. Their pulse are low and slow, their urine crude, and like whey.

If the Bath waters are poured into a stomach thus coated over with a thick slimy mucus, they will pass thro' it without having any other effect but that of adding to the load, distending it by rarefying the vapours which are confined in it, and producing flatulency and nausea ; for they have not power to dissolve this tenacious matter. In order therefore to render them serviceable, it is necessary that the patient should take some ponderous and saponorous medicines, amongst which I think crude mercury the best. These will penetrate the viscid humours, attenuate and dissolve them, and make them easily separable from the coats of the stomach. When it is judged that these medicines have done their office, a vomit composed of ʒiſs of the vinum ipecacuanhæ, with one or two grains of the emetic tartar, may be given, and the day after a warm purge to carry off what may have been sent down into the intestines by the operation of the vomit. The stomach being thus cleansed, the waters will come into contact with its coats, which they will wash, warm, and strengthen, and by degrees will free the villi from the load
which

which oppressed them ; and by thus invigorating the nervous fibres, will restore them to their proper tone and activity. The opened glands will begin to secrete rightly, and to pour forth their several liquors fit to be mixed with the food for its further solution. Then appetite will return, the food will be received with pleasure by the stomach, will be rightly digested, and retained no longer than is necessary for the purposes of nutrition.

During the course of the waters, the following medicines will be usefully interposed. Elixir P. P. alkan. may be given in a small glass of the water about twelve or one o'clock. It will help farther to cleanse the coats from any of the viscid humours which may still be entangled amongst their villi, and will render the waters more detergent. After a time some warm bitter infusion, in which bark is an ingredient, will still further help to restore the tone of the relaxed fibres, and the Elixir Vitrioli may be added, if necessary, to increase its efficacy.

The diet should be dry, and warm, consisting of roasted meats rather than boiled, and spices may be allowed in the sauce. All garden stuff,

stuff, except the hotter fallads, must be forborn, and these should be dressed with mustard, little vinegar, and less oil. Butter fouls the stomach, and therefore the temptation of hot buttered rolls, the usual breakfast here, should be resisted. Fish in general turn into a putrilaginous liquor, which becomes glue by heat, and therefore are too near a-kin to the peccant humour we have been endeavouring to remove.

Two or three glasses of good strong claret, or of old genuine madeira, will strengthen the fibres, and raise the spirits, and therefore coincide with the intentions of cure. Bath water, from the King's Pump, fetched two hours before dinner, and mixed with a little of the foregoing wines, will be the best common drink.

Rubbing the stomach with the flesh brush, once or twice a day, will greatly strengthen its fibres.

Plaisters of the warm oils and gums, will send their most spirituous effluvia to the part affected; and by thus comforting the cold flabby relaxed fibres, they may do great service.

The quantity of the Bath waters to be drank in this case, must be determined by observing
how

how they sit on the patient's stomach, beginning with small quantities, and rising gradually from half a pint to a quart in twenty-four hours. The King's is the proper water in this case.

How long the waters are to be continued can only be determined by observations made on the patients during the course of their drinking; but this should be a general rule, that as soon as they become less agreeable to the drinker, they should be discontinued.

Another disorder of the stomach is, where the natural juices poured into it by its glands, for the uses of digestion, are depraved, growing hot, sharp, and acrid, to a degree capable of turning every thing that comes into the stomach into their own nature, which is sometimes exalted into an Aqua Fortis. Persons in this condition feel a continual gnawing pain at the pit of the stomach, and that teasing uneasiness upon its upper orifice, called the heartburn, which generally comes on as soon as these juices, by fermenting with the new food, send up their vapours, which are sharp enough not only to give this uneasiness about the upper orifice of the stomach, but forcing their way upward, they

go off in such four eructations, as almost skin the gullet as they pass, and set the teeth on edge as they make their way through the mouth. These juices grown thus acrid not only give an appetite by their constantly stimulating the coats of the stomach, but the person who is thus diseased has a continual craving, which is a good deal owing to the association of his ideas. For having always found that fresh food does, for some time, dulcify these acrid juices, and consequently take off the uneasy sensations which arise from their sharp corroding properties, when he feels himself hurt he desires to return immediately and almost mechanically to the use of what gave him relief. But the comfort of this kind is short, and is generally bought at a dear rate. The acrid leaven which the new food meets with, soon conquers all its soft, mild, balsamic properties, and obliges it to turn its arms against the stomach, which it came to rescue. The pulpy mass swells, and distends the whole region; flatulencies are produced, pricking, tearing, gnawing pains, soon follow, and such incredible quantities of sharp disagreeable eructations succeed, as makes the poor creature unhappy both for his own sake, and for those also who are near enough to him to be

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offended.

offended. All fermented liquors join with these juices, run into their embraces, and become of their party the moment they enter the stomach, and by exalting their sharpness, heighten all the uneasy sensations which that quality produces. Indeed, without a proper regimen of diet, this unhappy state of the stomach, to which hard-drinkers, and persons whose gout is become irregular, are most subject, can never be rectified. Their meat therefore should consist of such things as are of a soft, insipid, mucilaginous nature, such as rice, millet puddings, young boiled flesh, no pickles or spices; cocoa, falop, or sago, may be allowed for breakfasts; either of them, or gruels for supper. Soops and broths turn sour immediately on such stomachs. All fermented vinous liquors must be absolutely avoided. Toast and water, with a little rum or old brandy, will be the best liquor for common drink, and lime water will be of great use.

As a preparation for drinking our waters with advantage, persons thus diseased should endeavour to free the stomach from this leaven, by a gentle puke. Ipecacuanha, emetic tartar, and chamomile tea, were the proper instruments with

with which the sluggish, thick, tough, mucous phlegm should be removed. In *this* case all the humours are thin, sharp, volatile, and the fibres rather inclining to a state of inflammation. The puke should therefore be promoted by large quantities of soft mucilaginous liquors, such as gruels, barley water, or mallows tea. These will sheath the acrid humours they find in the stomach, and bring them off in an innocent state; and if any of these liquors remain, they will cool, soften, and sheath the sore fibres, and guard them for a time against the injuries of those sharp humours. After the vomit, the patient may begin to drink a pint of the Cross-Bath water every morning before breakfast, half a pint an hour before dinner, and as much about six o'clock in the afternoon.

I here allow a greater draught of the waters, that they may dilute the acrid humours, wash and scour the glands, and not only pass quick out of the stomach, but likewise promote an evacuation by stool. The quantity may still be increased, if this does not answer the desirable end, and should be assisted by laxative medicines, if three pints or two quarts in a day do not produce one or two motions extraordinary. In some cases it is prudent to begin to

drink the waters in very small glasses; but we are very prone to run into extremes, and because our forefathers drank several quarts, which was found to be an error on the one side, to avoid this error we fall into the contrary mistake on the other, and often order them almost in spoonfuls. But the particular circumstances of the patient will always guide the prudent and experienced physician in his practice.

I have already spoke of the diet proper in these cases. The medicines which will assist the waters, are such as will sheath, absorb, and correct acrid humours, as, the electar. diacass. cum manna, testaceous powders, salts neutralized and mixed with powdered rhubarb. Perhaps a few grains of mercurius alkalizatus may be added with good effect.

Bilious vomitings I omit to mention here, because, though often reckoned a disease of the stomach, they belong to the disorders of the duodenum.

The stomach is liable to be offended with a variety of painful disorders, and great numbers of people labouring under them, have recourse to the use of these waters for relief.

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In these cases the first enquiry should be, whether the pain proceeds from an inflammation of the part affected, or not. If inflammation be the cause, it will be discovered by the fulness and hardness of the pulse, the high flame colour of the water, the dryness and fur of the tongue. If there is no inflammatory state, the pulse will be low, quick, and soft. The urine will be crude, pale, wheyish, or limpid. The tongue will be soft, moist, and of its natural colour; or perhaps a little white in the morning. In the first state the waters are not to be ventured upon till the inflammation is conquered by bleeding, cooling purges, and diluting liquors, all repeated as the stubbornness of the symptoms shall require. When all the signs of inflammation disappear, the pain too will be removed; but a soreness and weakness of the parts affected will still remain, which may be greatly helped by the cautious use of Bath waters. The Cross-Bath water is the safest to begin with, if not to be persisted in during the whole course. To these waters may be added a little milk, which often makes even the waters of the hotter baths bearable by persons of hot temperaments. Spirit of nitre may be dropped into the noon glass,

and a cooling purge should be given once a week.

In the other state, attended with all the symptoms contrary to the first, the waters of the hotter springs may be safely ventured upon, after proper evacuations. How to prepare, and how to assist the waters, requires a strict scrutiny into the cause, and as distinct a knowledge as we can possibly obtain, not only in this, but in all cases which fall under our consideration. —*Hic labor, hoc opus!*

When the stomach is full of sharp corroding humours, such acrid steams will arise, and affect the upper orifice, as will not only create heart-burns, but very acute pains in that most nervous and sensible part, which will be communicated to the diaphragm, and felt in the back, almost up to the shoulders. Here the evident cause points out an easy method of immediate relief, by unloading the stomach of its offending humours. To prevent these humours from gathering again is the difficulty, and so great a one it is, that we find all medicines often prove ineffectual, even under the most skilful direction, till by the use of Bath waters a right digestion is restored.

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The stomach is naturally covered with so thick a mucus, that very corrosive juices may lie a long time in it without affecting its nerves. Thus when things sour on the stomach no pain is felt till a fermentation coming on sharp steams arise, which vellicate the upper orifice, and after a discharge of sharp eructations, throw its fibres into such convulsive motions, as are necessary to free the stomach from its contents, which have so great a degree of acridity that they encoriate the gullet and fauces as they pass through them, though the stomach itself was insensible of their virulent qualities.

This happens to many people who eat well and feel no uneasiness during the time of digestion, till at a certain hour they are periodically waked out of their first sleep by the whole contents of the stomach being become sharper than vinegar, twitching, fretting, and burning the upper orifice of the stomach, which can only be relieved by immediate vomiting.

Many I have known, who, from an undue fermentation, have not been so much troubled with the sourness of the contents of the stomach, as with the surprizing flatulencies which
begin

begin to distend the stomach about the same hour every night; the patient wakes hurried, distressed, and affrighted by immediate suffocation: After some struggles, the rarefied vapour finds a passage, which the convulsive stricture of the throat at first denied it; then it rushes forth like a tempest, and with as much noise, yet not in a continued stream, but by successive belchings, in which the alternate motion of the diaphragm is the chief instrument.

This mucus may be destroyed by too frequent vomitings, natural or artificial; or by the use of mineral medicines ignorantly prepared, or improperly administered. It may not be of the proper consistence to be this kind defensive, from the fault of the glands which secrete it, whose fountains may likewise be dried up, by the too frequent use of spirituous liquors, or the insidious preparations of caustic bitters, which gain admittance under the friendly name of stomachics, though in reality slow but sure poisons.

When this mucus grows deficient in quantity, or its quality grows thin and sharp, the tender villi, which it should defend, soon languish and shrivel up, so that the nervous coat
of

of the stomach becomes bare, and subjected to the irritations and erosions of whatever is let down into it. This membrane is so extremely sensible, that scarce any food is so soft and insipid as not to affect it; but all things endowed with a saline acrimony, a sharp acidity, or a fiery heat, throw it into most violent agonies, which are so intolerable, that the sick person rather chuses almost to starve, than to risk the sufferings he has felt by taking down food. In this most miserable state many come to these waters for relief; though they are under as great horrors at the thoughts of drinking them, as if they had been bit by a mad dog.

This membrane, so affected, must always be either actually inflamed, or in great danger of becoming so, while it continues bare, and in so defenceless a condition. Bleeding therefore is absolutely necessary, and that as largely as the other circumstances of the patient will permit. The natural mucus is to be imitated as nearly as we can: Linctus composed of conserv. cynisbat. mucilagin sem. cydonior, sperm. ceti, pulv. e tragacanth composit. will be useful, and simple jellies of calve's feet, and sheep's trotters, without lemon or wine, should be recommended. To
all

all these a few drops of the tinctur. thebaic. or a little of the Syrup. e Mæcon. may be added with great benefit, as well as unspeakable comfort to the sick ; who has been quite worn down by pain, restlessness, fasting, and that anxiety which can't be described. By these applications the nerves will gradually be guarded from uneasy irritations, nature will gain some respite, and have time to apply what powers she has left towards repairing her own work, and healing the breach. The pains being now a little alleviated, the sick will begin to take down such food as has the least stimulating property. Smooth milk porridge is one of the most soft mucilaginous liquors we know of. Salop has the same properties. Simple jelly dissolved in warm Bristol water, and the whites of eggs beat up with a small quantity of sugar and rose water, are all in this case a proper diet. When the stomach can bear this food without any uneasiness, the regimen may by degrees be enlarged to the whole milk diet, and bath-water whey may become a part of it. From that we may gradually rise to the use of the Cross-bath water, putting one spoonful of milk into each glass. Under this regimen, nature will have the greatest opportunity of restoring the stomach

mach

mach to the best state of health it is capable of regaining: And she will be greatly helped in her endeavours by the comfort and strength all the fibres of the stomach will feel from the Bath waters, as soon as this tender part of the nervous coat is again in a cool quiet state, and guarded by fresh mucus from feeling any uneasy sensations from the activity of its mineral particles.

Very various are the painful affections of the stomach, which arise merely from the diseases of distant parts, without any fault of its own. The head and the stomach sympathize with each other by the intercourse of nerves. The duodenum often proves a bad neighbour, and empties its filthy contents into the cavity of its superior. The lower intestines affect it by the continuation of the common membranes, and often drive worms, which are naturally the invaders of those lower regions, to take shelter in the stomach, till finding themselves uneasy in that situation, we have often seen them creep out at the mouth. But no part communicates more distresses to the stomach than the uterus. Sickness, and inclinations to vomit, are often the first indications of pregnancy. Suppressions
of

of the menstrual flux, or its running off in too great quantities, will either of them give pains in the epigastric region; and scarce any woman labours under the fluor albus, to any great degree, who does not complain of a weight, and pain at the pit of her stomach.

The kidneys likewise scarce feel any disease, without the stomach's being affected by it. But particularly what are properly called nephritic complaints, owing to some extraneous matter in the pulvis or uretus, never fail to produce nausea, and frequently most enormous vomitings, which laudanum only will appease, but nothing can stop, till the irritations of the kidneys can be taken off, by the discharge of the gravel, sand, or whatever lay in the pulvis or ureters, or by its being again replaced in a quiet situation, from whence some accidental motion had moved it.

In this case nothing facilitates the descent of any little stone or gravel through the ureters, equal to a semicupium of Bath water. Its relaxing properties are truly anodyne, and in numberless cases of acute pains it is not to be described with how much extasy persons put into the tub or bath, feel an immediate transition

sition from torture, to the heavenly state of ease and tranquility.

What we call a nephritic cholic, from its affecting the same nerves which the diseases of the kidneys generally do, counterfeits them likewise, in disturbing the stomach by sickness and vomitings.

From these hints it will appear, of what great consequence it is, that the original disease should be rightly distinguished from complaints which are only symptomatical, before a cure is attempted. Stomach diseases come to us in the lump, and our waters are kindly supposed to be an effectual remedy in all of them: But alas! too many such patients leave us without benefit, as they proceed without the knowledge of their disorder, and consequently of the proper means of removing it. They torture their stomachs with vomits, purges, and nauseous bitters to no purpose; while the cause lies lurking in some distant corner of the microcosm, and returns with them again to their own homes undiscovered.

THERE are other disorders of this organ, where Bath waters are useful, which the Doctor has left unnoticed.

For

For instance, the Gout in the Stomach. But of this he has spoken elsewhere.*

Another disorder this part is liable to is a very severe one, namely, a *Cramp*. I have heard patients subject to this seizure express their sensations of it by the idea of their stomach's being squeezed by the gripe of a strong hand. The complaint seems to be a spasm of the coats of the stomach occasioned by the irritation of some acrimonious humour lodged among its muscular and nervous fibres.

Opiates afford a temporary relief. A perpetual blister on the pit of the stomach frequently does much good. But the disease is more often removed by drinking these waters and bathing. For by bathing the offending acrimony is carried off in perspiration, while the internal use of the waters gives strength to the part, and renders it less liable to future attacks.

* *In his Essay on the Use and Abuse of Warm Bathing in Gouty Cases.*



Observations on the JAUNDICE.

* **H**AVING before hinted the good effects of these waters in complaints of the liver,* I shall take this opportunity to be a little more particular, and describe those kinds of jaundice in which they are most serviceable.

This disease has its rise from such different causes, and is attended with such different circumstances, that it frequently demands a different method of cure,

Our waters have acquired too general a reputation, almost to their being called a specific in jaundices of *all kinds*; by which means many fatal mistakes have been committed by those who think that all diseases which have the same name have the same nature, and that the same medicines will cure all distempers which have the same denomination. It will therefore
be

* See page of the Enquiry.

be of use if we could rightly distinguish the different species of this distemper in which the Bath waters do great service, from those in which they do great mischief. This would require a particular treatise ; but the following short observations may, in some measure, contribute towards the attainment of so necessary a distinction.

Whenever the gall ducts are obstructed by cholic pains which arise from spasm, and the bile is by that means thrown back into the blood, it immediately tinges the lymph, and changes the whites of the eyes and all the surface of the skin into a bright lemon colour. After proper evacuations, the Bath waters are almost a certain remedy ; abating the pains by their softening, relaxing, and anodyne quality, and diluting, correcting, and washing away the acrid particles from the intestines, which brought on the spasms that stopped the biliary ducts and created the disease.

When indigestion brings on a visciduity of the humours, and a flabbiness of the solids, the glands are loaded, and perform their office very imperfectly. The secretion of the bile grows sluggish.

fluggish. The bile itself becomes so viscid that it stops up the canal through which it should pass into the bowels, and a jaundice gradually appears. But here the colour of the skin is not of so bright a yellow as in the former species.

When this is the case, vomits and attenuating medicines are required to prepare for the waters, and to assist them in their operation.

After proper preparation, no medicine will prove more effectual than these waters in mending the digestion, the defect of which was the original cause of the disease. They will dilute and inspirit all the juices, wash, scower, and cleanse the glands, especially if aided by saponaceous medicines, and consequently restore the secretions of the liver to their true state. The bile will become of its natural consistence, will pass through its proper channels, the yellowness of the skin will vanish, the urine will change from the colour of porter to a pale amber, the stools from a whitish clay will become brown, and the jaundice will be cured.

Another species of this distemper arises from stones, or concretions of bilious matter, lodged

in the gall bladder, which, though they sometimes lie there in a quiescent state undiscovered for many years without producing a jaundice, yet they often push into the cystic duct, and by compressing the ductus communis oblige the bile to regurgitate, and find a passage into the blood instead of the duodenum. When one or more such stones begin to move, and to force their way through the cystic pipe, they occasion exquisite pain.* This pain begins commonly at the pit of the stomach, and passes transversely through the body towards the back. At first it is in a mild degree, but it increases at length to such an excess as to be intolerable; when of a sudden it totally vanishes, and the patient finds himself perfectly at ease. A continual reaching also accompanies this pain.

These symptoms are pretty sure diagnostics of a gall stone's being in the cystic duct; and the immediate cessation of the pain and vomiting are signs either that it has forced its passage into the duodenum, or that being too large to pass, till the canal becomes more lax and capable

* This pain has often been mistaken for gout in the stomach, and of course the patient has been very wrongly treated.

pable of sufficient distention, it has retired back again into the gall bladder.

The stones in the gall bladder are so far removed out of the sphere of the general circulation, that there are little hopes of ever finding any solvent which may arrive at them, while its powers subsist. Encouraging them therefore to pass into the gut, whenever they attempt to do so, seems to be all that we can do.

Nothing is found to promote the passage of these stones into the duodenum more effectually than bathing in our baths; which rendering the parts soft and yielding, taking off all spasmodic contractions, and at the same time by the weight of the water's pressing on the epigastric region, the stone is pushed forward, while the resistance of the canal through which it is to pass is diminished.

While the patient is in the bath, the right side of the epigastrium should be gently rubbed with the hand to facilitate the passage of the stone. I have known its passage procured by a gentle emetic, given about an hour after the patient has rose from the bath; but the use of such a remedy demands the highest caution.

Dry cupping on the epigastrium has likewise been found of great service.

Where the pains are very acute, bleeding and opiates will be necessary.

It has been already observed, that as soon as the stone has passed into the gut the pain ceases. A jaundice, from the stone's having remained some time in the duct before it could get through, now comes on ; but, if the passage is left clear, it vanishes in a few days.

Gentle cathartics are now proper to carry off the stone through the intestines, as otherwise it might lodge in their folds, and occasion cholicky complaints: But by these means it will probably be found in a few days among the fæces.

After the stone or stones, (for I have seen them in great numbers) are voided, the Bath waters drank pretty freely will be of great service, in cleansing the first passages, restoring appetite, correcting digestion, depurating the blood and juices from bilious taint, and, which is of the most consequence, *restoring that due mixture and union among the several component parts*

parts of the bile, from want of which the disease itself originates.

The last species of this distemper I have to mention is commonly known by the name of the black jaundice. It is usually the consequence of the yellow jaundice long subsisting. The bile by degrees unites with the most compact, earthy, inactive parts of the blood, and gives it a viscidness, a ropiness, that renders it incapable of circulating through the finer vessels. It therefore stagnates in these fine vessels, and forms obstructions, often hard swellings, in the liver, spleen, and mesenteric glands. These obstructed humours by degrees acquire an acrimonious leaven, which infects and poisons all the juices of the body. Hence arise lassitude, debility, loss of appetite, want of digestion, dejection of spirits, melancholy, and all that train of various misery which accompany hypochondriacism; and which finally end in the death of the miserable being, whom they have long before tormented.

This faint idea of this distemper plainly indicates all possible means by which this deleterious matter can be corrected, attenuated, and expelled the constitution. And how far our
Bath

Bath waters may help to answer these indications, their commonly known properties will answer for them; provided their use be not deferred to the last stage of the disease, when a putrid fever arises, which, instead of abating, they would increase, and consequently accelerate the destruction of the patient.

From this enumeration of the particular kinds of Jaundice, and other liver diseases, in which Bath waters are useful, may easily be collected *those* in which they are detrimental. And 'tis to be hoped this short detail may contribute to prevent their indiscriminate application in every complaint to which this organ is subject. For in a schirrus of the liver they do no good: in an inflammatory state of the liver, or of its ducts, they do much harm; and in hepetic fluxes, where the bile is secreted in too large a quantity, they add to the complaint.

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12, l. 1, for principal—principle.——l. 16, for, Or with—
read As also to.

ANALYSIS.

Page 3, l. 6, for sulphurous, *read* sulphureous.——And in Note, l. 4,
for conserva—conferva.

6, l. 2, for, are they—they are

11, l. 8, for spungy—spongy.

18, l. 24, for dispotion—disposition.

23, l. 1, after cream, *read* colour.

41, l. 2, in the Note, for fera—ferè,——and for alterè—alterâ.

43, l. 15, for dissolve—dissolved.——l. 16, for subside—subfided.

50, Note, l. 3, for place—places.

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Page 4, Note, l. 1, for Bathoniensis, *read* Bathonienses,——and l. 3,
for faitis—fatis.

5, l. 4, for Precepta—Præcepta.——And l. 8, for mersiones—
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61, Note, l. 2, for $\nu\omega\pi\alpha\tilde{\iota}\varsigma$ — $\nu\omega\tau\iota\alpha\tilde{\iota}\varsigma$.

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Page 13, Case 7, for Aug. 11, 1774, *read* 1773.

23, l. 3, after G. Guaic—grana v.——l. 4. for g. s.—q. s.

26, l. 20, for sarfa parilla—sarsaparilla.

28, l. 17, for tumour—humour.

46, l. 24, for splincter—sphincter.

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57, l. 7, for acitabulum—acetabulum.

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